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ECHEVERIA CULTIVARS

LORRAINE SCHULZ
ATTILA KAPITANY



ECHEVERIA CULTIVARS

A great deal of confusion exists with echeveria identification . This book correctly identifies over 150 different types. It is meant as a visual feast of the beauty of echeverias as well as an identification guide. No other books have ever offered such coverage, making this book the standard by which others on the subject will be measured. The text throughout is jargon-free, in keeping with the author's desire to make this book an easy and enjoyable reading experience for everyone.





Echeveria Cultivars





(DM)

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A hash mark (#) after a name acknowledges the grower of the plant illustrated. Initials are found near the right lower or upper margin of photographs. Photographs without initials are from the author's past and present collections. The origins of some photographs may have been lost and the authors apologise for any incorrect acknowledgements.

Preface

The form, colour and endless variation of echeverias have fascinated us for many years. When we first began collecting, we quickly found out that there was a shortage of useful information about echeverias and their identification. What was available consisted of outdated books with poor colour reproduction or only monochrome photographs. The best source of identification turned out to be other succulent collectors. Some had what appeared to be reliably named plants. Others had few names, largely because they were also not sure. With the development of the internet, a great deal of information became available; while much of this is useful, just as much has turned out to be conflicting and, in some cases, is obviously wrong.

Our book is a testimony to the beauty of echeveria cultivars. In addition, this book will help in the identification and better understanding of many of the best cultivars. While many of them are common and readily available, some are uncommon, new to cultivation or rare. They range in size from miniatures which are mature at 40 mm in diameter to giants which can grow over 600 mm in diameter and over a metre high. Part 1 of the book provides background information, and detailed advice on care, health, pests, diseases, propagation and plant names. Part 2 and 3 is an alphabetically arranged photographic library to help with the identification of plants. A comprehensive plant index containing cultivar and species lists completes the remaining pages.

We hope you enjoy our efforts!

Lorraine Schulz and Attila Kapitany





Introduction

6

What is an echeveria
Species, cultivars, hybrids and other definitions
Echeverias in nature
Early hybrid history
Crests, variegates and sports
Echeveria look-alikes
Intergeneric hybrids



Part One:

Care

14

Growing echeverias in pots
Growing echeverias indoors
Growing echeverias in the garden



Pests and Diseases

26

Pests
Diseases



Propagation

30

Offsets
Stem cuttings
Leaf cuttings
Head cuttings
Propagating from flower stalks
Seeds
Creating new hybrids

38 Understanding names

How plants get their names
Why names change
Name validity
Accidental names changes
One plant, several names



44 Part Two: Photographic Library

Introduction to the different types of cultivars
Cultivars, arranged in alphabetical order



184 Part Three: Odds and Ends

Un-named hybrids
New hybrids
Variegates



192 Appendix

Hybrid history
Cultivar Index
Species list
Recommended reading
Index





▲ *E. elegans* is one of the most well known and widely grown of the species and is a good representative of the genus. First described 100 years ago, this species has been used to create a number of hybrids.

▼ Single rosette of *E. elegans* which has been sectioned to show leaf thickness. Root systems of echeverias are fibrous and spreading but generally surface rooting.



Introduction

What is an echeveria?

Almost all echeverias are perennial succulent plants with thick or fleshy leaves arranged in a rosette form. Some have squat, compact solitary rosettes, some rosettes develop into a clumping form with multiple smaller rosettes around the base, while others have more open rosettes on outstretched stems which may develop into small shrubs. The species are variable, and sometimes the lines that separate them are unclear and confusing. Taxonomically, this is a difficult genus to organise into distinct species for two main reasons. The first is that individual echeverias within many species can be highly variable – so much so that some individuals can appear to belong to different species. The second reason is that echeverias in their natural habitat have been poorly studied. This is because of the mountainous terrain in which they are found is often remote or difficult to access and study and contains many unexplored habitats. As more detailed field explorations are conducted, the species and their population boundaries are expected to become a lot clearer. At present there are about 130 accepted species with new ones being discovered or described every year. More rare and isolated species will no doubt be discovered and named.

▼ A selection of echeveria flowers. Freshly cut and taken indoors, they always outlast more conventional flowers.



Species, cultivars, hybrids and other definitions

Man-made categories have been devised to help us understand naturally occurring distributions of plants and animals. When we refer to *Echeveria* species we mean those types which occur in nature as distinct populations and breed only within their own population. It is not common for different species to interbreed as in nature they grow far enough apart, often with a mountain range or valley in between, thus creating a barrier that separates populations.

In cultivation, it has been found that almost any echeveria species can be used to breed with another species to produce a new or different plant called a hybrid.

Species names are always written in lower case letters and, when printed, are usually in italics e.g. *Echeveria elegans*. Hybrids are often given new names which always start with a capital letter with the new name in inverted commas e.g. *Echeveria* 'Blue Curls'. Another term for these new hybrid names is the word 'cultivar' (see pages 38-43). A cultivar (short for cultivated plant) refers to any cultivated plant that has been chosen for its special features and reproduced by means other than seed propagation. Sometimes a cultivar can be a selected form of a species which was collected in nature or grown in a nursery because it was particularly attractive or unusual. All hybrids are cultivars, but not all hybrids have been given a cultivar name.

For various reasons, some echeverias have mutated. These are referred to as spontaneous mutations and include crests, monstrose types, variegates and sports. A crested plant (often just referred to as a crest) has an elongated growing point, resulting in convoluted growth. Crests can arise from a species or from hybrids. Occasionally echeverias become variegated. This is where one of the cell layers loses its green pigment, usually resulting in yellow and/or white bands or patterns showing on the leaves. Other spontaneous mutations are simply referred to as monstrose or sports, which show unusual features not seen in typical plants. The more attractive spontaneous mutations are propagated further to maintain that feature and are sometimes given cultivar names. Also see pages 49-51.



(MC)

▲ Assorted *E. agavoides* cultivars showing greater diversity, colour and contrast than most examples of the natural species.

▶ Mutations occur from time to time. *E. runyonii* (left) has several mutations, the most common of which is *E. runyonii* 'Topsy Turvy' (right).

▼ *E. pulvinata* (upper) compared to its superior cultivar *E. 'Ruby'* (lower). Plants were grown together under the same light and soil conditions. The cultivar always has more leaf colour.



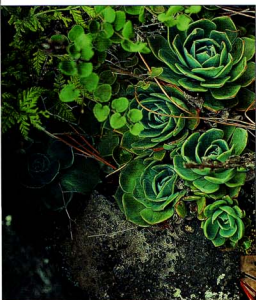


Photo: Woody Minnich

▲ Two echeveria species growing on basalt in a pine forest. The ferns indicate a humid environment.

► *Echeveria cuspidata*, growing on a limestone outcrop. This species grows in a sunnier and less humid environment than most species.

Insert: Closeup of species.

▼ *Echeveria nodulosa*. Note the mosses with which it grows. Compare this with plants on page 142.



Photo: Woody Minnich

Echeverias in nature

Echeverias are native to mountainous areas from Mexico to Argentina. One species even extends north into Texas. The largest concentration of species comes from Mexico and echeverias are thought to have originated there and evolved and spread into the countries to the south. The southerly species are the most genetically variable and most unstable. They appear to be in a state of rapid evolution, making description very difficult.

The terrain where echeverias live is most often vertical cliffs, small exposed rocky ledges or terraces with shallow soil deposits where other plants find it difficult to grow. Many echeverias grow vertically and almost flat to the wall in cracks on the sides of sheer cliff faces. With a few exceptions, echeverias are from high altitude, not found growing below 1,000 metres. Some grow at up to 4,000 metres in elevation.

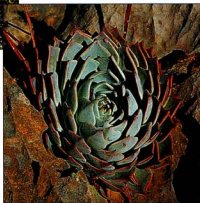


Photo: Woody Minnich

Early hybrid history

The genus *echeveria* was named after the Mexican botanical artist Atanasio Echeverria, who made some of the first drawings of these plants around 1787. In the late eighteenth century the French were among the first to hybridise *echeverias* and distribute them around the world. Some of these earlier hybrids are still commonly found in gardens today, notably *E. 'Imbricata'*, which was created by M. Deleuil in France around 1870 by crossing *E. gibbiflora* 'Metallica' with *E. glauca* (now called *E. secunda*). The 1870s were a boom time for *echeverias* in Europe and from here some of the early hybrids were imported to California, where they proved easy to grow as both greenhouse and garden plants.

In the twentieth century, along with the discovery of many new highly attractive species, came an increase in the hobby of accumulating collections of these plants. At any one time, whether in a glasshouse or out in the open garden, different species would be flowering at the same time, allowing for both manual and natural cross-pollination between the species to occur. The ease with which this could be done encouraged some growers to pursue very controlled cross-pollination, where specially selected parent species were used. The best hybrids with superior features were then distributed as named cultivars. These cultivars could command high prices on the open market and many commercial growers expanded their hybridising to embrace this opportunity. There are many more man-made *echeveria* hybrids than there are natural species. Hybrids are mostly larger and easier to grow than their species parents and come in a greater range of shapes and colours. The most popular *echeveria* hybrids are the larger frilly 'cabbage-like' ones.

For more information on cultivar history, see page 192.



Photo: Woody Minnich

▲ A planting of habitat collected *E. gibbiflora* in Mexico. Note the variability of frilliness in these plants. The various forms of *E. gibbiflora* have been used to create most of the frilly and bumpy hybrids so popular today.



(SF)

◆ *E. 'Imbricata'*, one of the earliest known hybrids, is still one of the most widespread and popular cultivars seen today.



(MC)

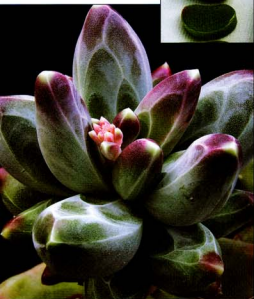
⚡ A few haworthias, like this *Haworthia cooperi*, superficially resemble the smaller echeverias but are easily distinguished by their thicker leaves, which have translucent leaf tips giving them a two-tone appearance. The flowers of haworthias (inset) are very different to echeverias and their close relatives.

Echeveria look-alikes

Plants from other genera can sometimes be easily mistaken for echeverias. This page illustrates some of the more commonly mistaken species.

While examination of the only seasonally available flowers is the only sure way of determining the true identity of most plants, leaf features, which are available for examination all year round, are suitable for telling most examples apart.

⚡ *Pachyphytum compactum*. All pachyphytums have only a few thick leaves
Insert: Sectioned leaf.

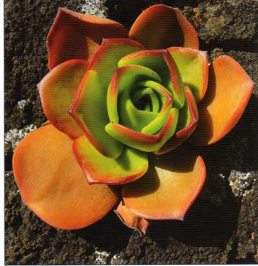


⚡ *Sedum suaveolens*. This species, as well as *Sedum clavatum* can easily be mistaken for echeverias. They can only reliably be recognised as sedums by their small flowers, which are in round tight bunches.





- ⚡ Sempervivums all have finely toothed leaf edges. Their flowers (inset) open fully and have twice the number of petals and stamens. The rosette dies after flowering.



- ⚡ *Aeonium nobile*. This is the only aeonium species which closely resembles echeverias in appearance. It can best be differentiated by its small teeth along the lower leaf margins. Echeverias always have leaf margins without distinct teeth.

- ⚡ *Dudleya brittonii*. All dudleys are winter growers as opposed to echeverias which are all winter dormant. Many of the popular species have leaves which are covered in a white, easily removable, wax. Dudleys have virtually identical flowers to echeverias, but their flower stalks are very different (see right photo).

- ⚡ Dudleys have many pointy leaflets on their flower stalk. These are thick and obviously spiky.





▲ *xSedeveria* 'Darley Dale'. This intergeneric hybrid is often mistaken for an echeveria. Most *xSedeveria* have an elongated stem. A recent survey of identical plants in Australian collections revealed the following names in circulation: 'Darleys Dale', 'Darleys Date', 'Early Date' and 'Sarleys Pale'. It is doubtful that these names will go out of use in favour of the correct name as several are now widely applied.

▼ *xPachyveria* 'Royal Flush'. *xPachyveria* is a hybrid genus between *Pachyphytum* and *Echeveria*. If the leaves are almost half as thick as they are wide, the plant will probably be a *xPachyveria*. *Pachyverias* generally have rounded leaf margins as opposed to most *echeverias* which have sharper margins.



Intergeneric hybrids

Echeverias have been frequently crossed with species from other genera, notably *Graptopetalum* (giving *xGraptoveria*), *Pachyphytum* (giving *xPachyveria*) and *Sedum* (giving *xSedeveria*). Cultivars from *xGraptoveria* cultivars are the most difficult to differentiate from *echeverias* by vegetative appearance. The flowers, however, are markedly different, having petals which are free from one another instead of being joined into a tube. *Graptoverias* are frequently seen mislabeled as *echeverias*.

Pachyverias are more easily differentiated from *echeverias* because they have thicker leaves than almost any *echeveria*. *Pachyveria* leaves are also generally held more erect than most *echeverias*.

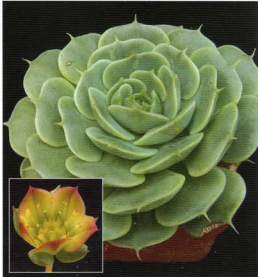
Sedeverias generally elongate on stems which are weak and cannot hold themselves upright. The rosettes are generally taller than they are wide.

▼ *xGraptoveria* 'Douglas Huth'. Often mistaken for an *echeveria*, it is best recognised as a *graptoveria* by its flowers. All *graptoveria* flowers are more open and often star-like. All *echeveria* flowers are tube-like and often bell-shaped.





✚ *xGraptopoveria* 'Debbi'. Graptopoverias are the hardest genus to distinguish from hybrid echeverias, with many requiring an inspection of the flower.



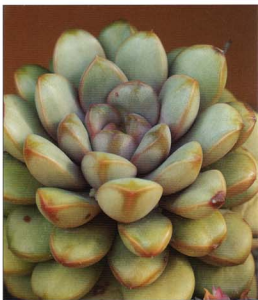
✚ *xGraptopoveria* 'Southern Belle'. Except for the fine leaf tip, this hybrid closely resembles an echeveria. The flower (inset) has wider petals which are not fully open.

✚ *xGraptopoveria* 'Fred Ives'. This old hybrid of *Graptopetalum paraguayense* and *Echeveria gibbiflora* is often mistaken for an echeveria. It is the largest intergeneric cultivar, with rosettes reaching 200 mm in diameter. The leaf colour varies depending on seasonal conditions and stress.



(TP)

✚ *xGraptopoveria* 'Amethorum' is one of the few in its genus that has very thick leaves.





(VA)

▲ A living decoration. Potted echeverias are easy to care for as they can be moved to where conditions suit the plant. When at their best they can easily be displayed on tables for visitors.

▼ Do you have a space problem? This ingenious shelving maximises the use of space against a house wall. This position also offers some shelter under the eaves. It may be necessary to provide extra shade cloth or other plastic protection from extreme weather.



(MC)

Care

Echeverias in pots

Generally, the healthiest and best looking echeverias are those that are grown in pots, especially when given some protection from extreme weather conditions. Pot culture allows plants to be shifted under cover as the weather or mood suits. The best situations for potted plants are sunny outside positions such as courtyards, verandahs and greenhouses.

Where potted echeverias are kept will vary from garden to garden. Location is the most important factor in determining their health and appearance. Moving a pot just 300 mm can make all the difference between an ideal spot and a poor one. Experiment, and if after a few weeks the plants look unhappy try a different location. An indoor environment is a very special one which requires extra care (see page 21).

In some climates potted echeverias can be in direct sun, but usually they will need to be given some protection from frosts, intense summer sun, hail and excessive rain. Protection from the elements can range from simply being kept under the eaves of the house to having a special shade house or other structure with a transparent roof. At its most advanced, it will consist of a fully enclosed glasshouse with adjustable shading and temperature control. What all these environments have in common is an abundance of light coming from as many directions as possible. The more protection from rain and frost, the better. Each environment will have advantages and disadvantages and any care and health advice can only be general and will therefore need to be modified to suit individual situations.

High light levels are critical to the healthy appearance of colourful echeverias. The more light, the better the colours. Growers in climates with long winters and rainy summers are already at a disadvantage as their plants will not develop as much colour as plants grown in a Mediterranean climate where the winters are mild and the summers are mostly rain and cloud-free. It is still possible to grow healthy echeverias in less than ideal climates, but it will require more work. Only a glasshouse or its modern day equivalent will provide the correct environment for picture-perfect plants. Those lucky enough to live in a more echeveria-friendly environment need only offer protection from heavy frosts and hail in order to grow attractive plants.

The direction from which light falls on the plant will be another major factor in determining how well echeverias grow. A transparent roof which allows at least 50% of the light through will give the best results. If a roof is opaque and light only enters from the sides, the plants will grow elongated and tilt to one side. Such plants never look as good as plants which receive most of their light from overhead.



It is common for some larger, faster growing echeverias to become overcrowded, requiring some form of attention. If left any longer than pictured, smaller growing plants will be smothered and die.

An ideal presentation of healthy potted plants which can be spaced as the need arises. Dry, fresh air circulating around each plant is important for good health.



(MC)



(PD)

- ▲ A hydroponic rose nursery tried a few echeverias on their standard feed and watering system. The plants grew bigger, better and faster than ever before and at the same time the rosette was kept free of moisture and stains.

- ▼ This plant was moved from the greenhouse into the garden on a bright sunny day. It was not very hot but some of the leaves still suffered sunburn. The reason only some of the leaves were burnt may have been that these were very shaded while under cover.

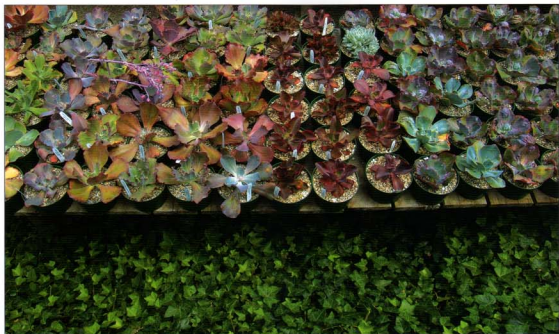


This point also needs to be considered when pots are placed close together, smaller plants overshadowed by larger ones will also show uneven growth and poor colour as a result of receiving insufficient light.

Temperature is less critical than light for echeverias. The ideal daytime temperature during their summer growing season is 20-25°C with nights between 5-15°C. Most echeveria hybrids can withstand a light frost. They benefit from a fall in temperature during autumn and respond accordingly by displaying their autumn colours, which are always more intense than at any other time in the growing season. Spring is the next best time for colour and overall appearance. Fresh spring growth increases as the days become warmer towards summer. During summer, the overall plant size is at its greatest, however the leaves are often weak and brittle.

Watering is an issue that is often made more complicated than it needs to be. Echeverias require water when they are growing but can be kept quite dry when they are dormant in winter. Mature plants can survive for up to five months without a drop of water during winter, but look better if they are still watered sparingly every two weeks. When in growth, they like to be almost constantly damp and can stand short periods of total saturation of the potting mix, but not for more than a few days, as this will lead to root death. During hot, dry weather, large echeverias can be watered daily and it can be surprising how quickly the potting mix becomes dry again. This is not to say that daily watering is essential. Being succulents, they can survive for months without any water even during their growing season, but will grow very slowly if not watered regularly. Small or young plants need more regular watering at shorter intervals. Once established, larger plants will require less frequent watering. Plants in unglazed pots, especially terracotta ones, need more watering than echeverias in glazed or plastic pots.

All pot plants need to be repotted from time to time. Echeverias are no exception, having root systems which can quickly fill the pot. Nutrients are absorbed rapidly and after twelve months the potting mix is usually filled with a mass of fine, hair-like roots. The larger growing cultivars benefit from being repotted every one to two years. This is particularly true when they are still immature, because they are gross feeders that appreciate fresh potting mix and fertiliser. Larger growing cultivars outgrow small pots very quickly and rather than starting them in a large tub, it is best to pot them up regularly. Once plants reach maturity, repotting is less important. Repotting can cause growth surges, especially if too much fertiliser is applied after a long period with little or no food. As a general rule, repot frequently when plants are small and less so when mature. Mature small types



⚡ A range of very attractive echeverias which have elongated and turned slightly pale after being grown under shade cloth. Giving them more light will restore bright colours and more compact growth.

⚡ This assortment of echeverias originally had a range of bright colours but then experienced a hot summer day in excess of 38°C. All the leaves faded to this bleached colour. With milder temperatures the plants returned to their normal healthy colours over the following month.





▲ Any sudden rapid increase in nitrogen levels may turn these plants into large, green, possibly unrecognisable, plants.

will need to be repotted when, during their growing period, they appear to have stopped growing. The plant's width may decrease. This happens when the lower leaves die faster than the newer leaves can grow. Repotting should ideally be done in spring, but can also be done through summer and into early autumn.

Echeveria cultivars are not very fussy about the composition of the potting mix. They like an organic-based mix which has plenty of coarse particles for good drainage. Many growers add some sand or gravel. The potting mix sold commercially as 'cactus and succulent potting mix' is not very suitable for echeverias as it usually contains too much sand and gravel. A good quality standard potting mix is all that is required for healthy growth. Alternatively, mix one part of commercial cactus mix with one part of standard potting mix. Plants which have not been repotted for three or more years may benefit from a light application of agricultural lime or dolomite as this prevents the acidity of the mix becoming too low (the soil going 'sour').

Packaged potting mixes usually contain enough fertiliser for a season's growth, in which case no additional applications will be required for twelve months. If plants are fully grown and looking good, only a small amount of additional fertiliser is needed. Slow-release fertilisers are preferred and can be applied directly on top of the potting mix or can be lightly scratched into or buried in the mix. Alternatively, a liquid fertiliser can be applied. Liquid fertiliser poured over the leaves will not damage them, but it can leave unsightly white spots or marks as it dries. If you want a plant to grow large quickly, use a fertiliser with a high nitrogen content. To keep potted plants at a manageable size, many experienced echeveria growers prefer and recommend fertiliser with a moderate or low nitrogen level. As a general rule, fertilise only in spring and early summer. Established plants which are not firm in the pot should not be fertilised; they should be repotted into new potting mix and only kept damp until new roots develop. A few echeverias, for example *E. runyonii* 'Topsy Turvy' (see page 174), look best when grown in old, nutrient-poor mix.

An often ignored but important aspect of echeveria care is air movement. Good air flow discourages a number of diseases. Avoid stuffy, enclosed, humid environments and never crowd pots and large plants too closely together.

It is normal for echeverias to shed their lower leaves as they grow. Leaves are shed all year, with most leaves being lost during winter and early spring. They should be regularly removed, especially from the larger growing cultivars as they can rot and if kept wet can spread disease. Once the old lower leaves completely dry or at least dead halfway along their length, they can be peeled away from the plant if still attached. Dead leaf removal is often impractical on the small

compact growing types. Healthy echeverias should have the same or more leaves this season than last season. If they have less, they will need to be repotted or even deheaded (see page 31).

With few exceptions, echeverias can reach maturity within two or three years. Maturity is when the rosette reaches its greatest width. By the end of the second year plants gradually decrease in width, never returning to their earlier size. Leaves decrease in length and number and the lower stems gradually get narrower as the plant ages. This declining health, demonstrated by a visible or exposed stem on hybrid echeverias, is for the most part a sign of old age. Long stems under a heavy canopy of succulent leaves can become top-heavy and tend to lean or even fall unless supported with a stake. To rejuvenate these old plants, many growers cut the heads off before the stem becomes too tall and re-root the rosette.

Mature echeverias flower every year with a peak period in late spring. In large echeveria collections there can be one or two plants flowering at almost any time of year. *Echeveria* 'Black Prince' is a good example of one that comes into heavy bloom from autumn through to winter. Echeveria flowers add colour and interest and can easily be removed and used as long lasting cut flowers. Allowing flowers to mature is also the only way to produce seeds and make it possible to grow new and interesting hybrids. It is enjoyable to see echeverias



➤ Growth spurts occur when plants are over-fertilised or repotted into very rich mix. This plant has large new leaves, many of which have not developed the typical bumpy leaf features. The newer leaves will not develop bumps as they age.



⚡ After only two years of growth, these 300 mm wide plants have their rosettes at maximum width. After this they usually decrease in width and decline unless repotted. Note that there are no old leaves, these have been taken off on a regular basis.



-  All tall growing echeverias eventually lean and nearly always end up falling over unless they are staked. Regular deheading every two or three years is the best solution for this problem. It also keeps them in better health.

flower for the first time, but after some years growers see the flowers in a different light. Many experienced growers, especially those with large collections, consider tall flower stalks a nuisance and remove them as soon as they appear. There are several reasons why flower stalks are best removed. Insect pests, especially aphids and mealy bugs, love echeveria flower buds. A serious aphid infestation will also produce secretions which fall onto the leaves and mark them with permanent, unsightly stains. On large cultivars, the weighty flower stalks can be up to a metre tall and can easily tip pots over, especially if exposed to wind. Echeveria flowers also distract from the leaf features and general symmetry of the plants, which is usually the main reason they are collected. If left on the plant until maturity, the flower stalk dries and may rot. The rot can move down into the main stem during humid weather. Lastly, as old petals and other parts of the flower stalk are naturally shed, they fall between the leaves, where they become harder to remove. This litter is not only unsightly, but can harbour and introduce pests and diseases to other parts of the plant.

Growing echeverias indoors

Many people would love to grow echeverias as indoor plants. Unfortunately, this is difficult unless there is a very well lit position available. Window sills are popular sites and many of the smaller

-  Small flowers on long ungainly stalks are unappealing and can spoil the appearance of the plant.



echeveria cultivars can be successfully grown there, bearing in mind that with the strong directional light from outside, the rosettes will always face the window. Positions which receive afternoon light may become too hot during summer, resulting in leaf damage, so if growing echeverias for the first time, experiment with one or two common plants before putting your best plants in a place that may not be suitable. On hot days (above 30°C) it is best to remove or shade plants as they can suffer sun damage. Another position often thought ideal for echeverias is the window greenhouse (photo right). Unless light and heat can be carefully controlled during summer, window greenhouses will be too hot for most echeverias.

The worst indoor environments for echeverias are normal room situations like kitchen benches, sideboards or coffee tables. While echeverias are often depicted in home and garden magazines growing indoors, this is not really the case and, as anyone who has tried will testify, they soon lose their colour and compactness and become lank and ugly within five to ten days. What magazines do not tell you is



⚡ An ideal indoor position, but only if overheating can be prevented. Extra shade and good ventilation will be necessary during summer.



⚡ This picture, taken indoors, suggests that these plants were grown in the house and like it there, which is not the case. Such images, which often appear in magazines, are very misleading for beginners.

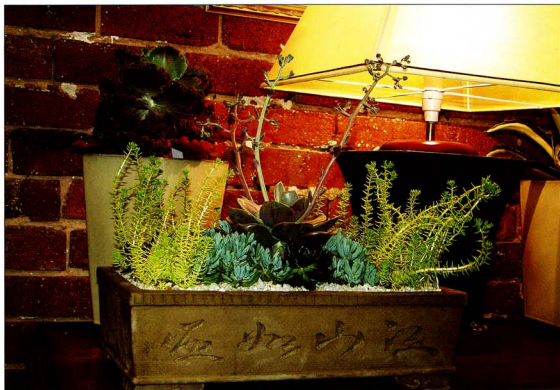


- Light coming from one direction will cause plants to grow towards it, resulting in lopsided specimens. Directional light is almost always inadequate for full the development of colours, creating pale, leggy plants.

- No amount of conventional indoor light can keep plants looking like these, which were recently brought indoors. They will quickly elongate and the colours will fade.

that for a photo shoot they bring in potted succulents that have been growing outdoors. Echeverias should only be kept indoors as a temporary decoration (as with flowers) for no more than a week, then put back outside for at least three weeks. Alternatively, two days indoors every week will allow plants to be brought indoors on a regular basis. Cuttings without their lower stems can also be taken indoors and displayed in dishes. Being soil-free, they are ideal for table displays or in flower arrangements.

Growing echeverias under special plant lights is the best way to keep them in the house. The correct combination of lights and the natural heat of the house can result in appealing plants, but they will never be as colourful and compact as plants grown in natural sunlight. If climate and space prohibit outdoor growing, then the use of special lights is the best way to grow healthy echeverias indoors. For further information, check the internet and garden magazines for hydroponic equipment and advice.



Growing echeverias in the garden

Echeverias can be grown in the garden in areas with mild winter climates. Suitable climates range from coastal, near frost-free temperate areas all the way to subtropical regions. Echeverias are easiest to grow outdoors in areas with mild summers and winters that are not excessively humid. Some regions, such as Perth, Western Australia, and the Arizona desert in America at first seem ideal for echeverias, having lots of sun and mild winters, but their summers are excessively hot, causing all but the hardiest echeverias to become sunburnt when the first heat wave occurs in spring. The use of midday and afternoon shade can allow echeverias to be grown more successfully under such conditions. In extremely cold climates, where echeverias freeze or rot from excess cold and dampness during winter, they can be lifted in late autumn (as with many bulbs) and stored indoors in dry boxes or on racks for the winter. Where frosty winters are sometimes long and wet, it is common to have removable temporary plastic framed covers over echeverias for the winter.

Echeverias do well in most garden soils alongside general garden plants. Light, soft, fertile soils are best. Clays and compacted soils are the worst as they have poor drainage. Soil type is not as important as good drainage. Echeverias will not tolerate saturated soil during their winter dormancy. If the soil is not well drained, create a raised bed at least 200 mm high for best results. The best way to plant echeverias is not to dig a hole, but just lay the plant on the surface of the soil with the roots flattened out so they sit close to the ground. Extra soil can be sprinkled over any exposed roots. If necessary, stones or rocks can be used to keep the large leaved types fully upright. Echeverias are not deep rooted plants and are thus ideal as ground covers under trees and shrubs or on rooftops or in balcony gardens. Echeverias appreciate organic matter in the soil, so a well mulched soil is ideal.

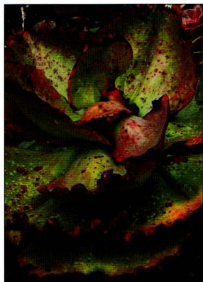


(PW)

▲ These colourful echeverias are growing under the eaves in a sunny position. The leaves are harder and more insect and disease resistant than plants grown indoors.



◀ Overhead watering with liquid fertilisers and bore water often deposits a residue on leaves which detracts from these otherwise exquisite plants.



❖ A few echeverias can take regular frosts, but most cannot. This example survived, but has damage from which it will take months to recover. Should a plant be damaged by frost or hail, remove it and dry it out, as any dampness or rain in the following days increases the damage.

❖ Water that sits for too long on leaves can damage the appearance and health of echeverias, especially the slow growing, delicate ones. All these marks occurred when the leaves were small and tender.

❖ Water droplets often collect and sit like this in the centre of echeverias. While this is not always a problem, potted collections that are only watered from underneath the leaves always make finer specimens.



Echeverias in gardens with fertile soil do not need to be given any extra fertiliser. If they are expected to grow in very poor soil or under trees such as eucalypts which take away nutrients very quickly, a light feed every few months during the growing season will give the echeverias all the nutrients they need.

The issue of sun and shade is a complex one and depends on how extreme the summer and winter temperatures are. In inland areas where summers are hot and winters can be frosty, it may be necessary to create a semi-permanent structure around the echeverias to enable a cover to be used during the heat of the summer and the frosty months. The cover can be removed for most of the year as exposure to the sun is best for developing the full colour potential of echeverias. A very sunny position is preferred in cool climates, even those which receive very hot days occasionally over summer. For hot climates or for those very hot days, more shade is recommended. One way of providing temporary shade during hot, sunny spells is to use shade cloth. Cut shade cloth into one-metre squares and always have a few around to cover your favourite plants.

The watering needs of echeverias in garden situations will depend on how wet the spring to autumn period is. Spring is usually wet enough for no watering to be required. As a rule, no water is needed for up to ten days after good rainfall. Echeverias are able to tolerate months without watering but will never look as lush and healthy as those which are watered during dry periods. The best time to water echeverias is early in the morning. Avoid watering in the late morning or midday sun on days that are expected to be very hot and sunny, because water droplets which sit in the crown can act like lenses and burn the newly developing leaves. Avoid watering on very hot and humid days, especially during the evening, as water will lodge in the crown overnight and may stay there for days if evaporation rates are low. This increases the possibility of a fungal infection. Some cautious growers hold the hose close to the base of each echeveria and avoid



splashing water onto the leaves and crown of the rosettes. This method is highly recommended for subtropical and tropical climates.

After about two or three years, many echeverias in the garden will start to look overcrowded or become leggy. When this happens the clumping ones should be gently broken apart into individual heads, which will often have their own root systems developing, then replanted with space left around each plant. Extra rosettes can be used elsewhere in the garden or potted up. The larger hybrids that develop tall stems will eventually fall over. Often, tall growing hybrids are staked as they begin to lean. This is not recommended because the problem only gets worse as the supporting root system declines. Most echeveria growers dehead the plants (see page 31) and replant the head once it has formed new roots.

Pruning and cleaning up of garden grown echeverias consists of removing the flower stalks when they become unsightly. Accumulations of old leaves can also be removed as necessary. Smaller echeverias generally grow in a ground hugging manner forming compact mounds. Their leaf litter is mostly composted naturally beneath them as they grow, so there is a benefit in leaving it. Unsightly leaf litter can be removed at any time, but is not in any way as much of a problem as it is with the large frilly echeverias.



A large garden area planted mostly with echeveria cultivars. After the main flowering season, the messy stalks remain, looking very untidy. Cutting them off, which only takes a few minutes, makes the garden look better (centre). This simple but important task need only be done once or twice a year.





♣ Organic control. Ladybird beetles are a natural predator of sap-sucking aphids.

♣ Possums and rabbits occasionally graze on lush, weak or green echeverias. Growing echeverias hard causes them to become bitter tasting and less palatable to pests.



Pests and diseases

Pests

Echeveria cultivars are no different to other succulents when it comes to care and protection from garden pests and diseases. Echeverias grown outdoors with lots of exposure to bright light and fresh air are quite resistant to most pests and diseases. The harder the plant is grown, the more resistant it becomes. Conversely, soft, lush or weakly grown echeverias easily become prone to pest and disease problems. Weak growth is often the result of too much fertiliser, water or shade, or combinations of these.

A clean and hygienic growing environment provides the best disease prevention. Any build up of leaf litter on, around, or (just as importantly) directly under echeverias, creates a breeding ground for pests and diseases. Overcrowding plants, whether in pots or in the open garden, should be avoided. Even individual pots with a mound of crowded rosettes can spell trouble.

Avoid excess water on the leaves and in the rosette centres, especially in tropical or humid climates where water sitting for any length of time can provide ideal conditions for disease or rot to set in. Propagation tools need to be as clean as possible to avoid spreading diseases from sick plants to healthy ones.

Detection of pests in their early stages is very important. A few insects, such as aphids, can breed and spread quickly if left to their own devices. Infected plants need to be dealt with promptly. All new plants brought into a large clean collection should be quarantined for up to a month to see if insects, or their eggs, have been brought in with the plants.

The larger the collection, the greater the threat of an undetected outbreak. A mealybug infestation can be especially hard to eradicate completely. When mealybugs get into fresh growth, they soon distort and damage the plant's appearance, which can last for up to a year, long after the insects themselves have been removed or killed.

Different climate zones and countries can have different pest and disease problems. In Melbourne, Australia, snails are the worst pest in the garden. Two thousand kilometres north in Queensland, the worst garden pest for echeverias is grasshoppers. In Perth, Western Australia, collectors worry more about slaters than any other insect pest. In New Zealand there have been reports of grubs eating into crowns. There is no rule about which pests will trouble you the most. The only generalisation we can make is that mealybugs will be the most troublesome pest in glasshouses, greenhouses and indoor potted collections.



(KCC)

Occasional observation and an immediate response to any potential problem is required to grow plants as perfect as this one.



Tiny aphids suck the sap from fresh growth and can seriously weaken normal flowering and plant growth.



Mealybugs often attack the leaf stems leaving behind a cloudy white residue. Ants are a common indicator of the presence of sap-sucking insects.



Slugs and snails usually only feed at night, especially after rain. Use a flashlight to catch them in the act.

E. 'Golden Glow' pitted with little holes made by vine weevils which feed at night. With sharp eyes and a flashlight they are easy to pick off.





⚡ Virus, fungus or bacteria? Whatever it is, one thing is for sure, it is sick and getting worse. Isolate or destroy such plants immediately.

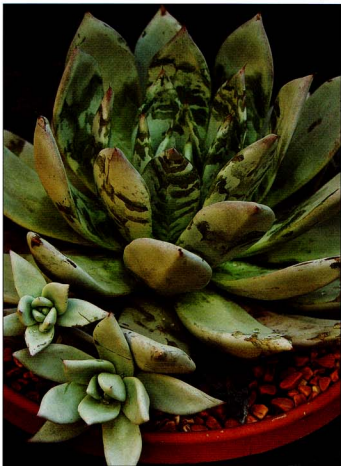
» Insecticide sprays often have solvent additives that dissolve some, if not all, of the powdery bloom that makes echeverias so attractive. More serious damage happens when sprays are applied in hot weather, causing chemical burns.

Chemical control

There are many ways of dealing with pests. Many can be controlled by organic means, others are very difficult. Some pests, in particular insects like mealybugs, need chemicals to kill them. There are many types and brands of chemicals suitable for controlling of pests that feed on echeverias. Rather than mention specific products, we recommend that you visit your local garden centre and personally inspect and assess the products that are available. Consider all such products dangerous and avoid using any product indoors. Wear gloves when mixing and using chemicals. Keep freshly treated plants away from children, pets or inquisitive guests who may handle newly sprayed leaves.

Fungi and bacteria

These can be difficult to distinguish, but are usually observed as leaves collapsing into a furry or watery state in a matter of a few days, sometimes followed by rapid progression to neighbouring leaves and finally stems. Damp and humid conditions are ideal for bacteria and fungi to multiply rapidly. Early detection and removal of any infected leaves is essential. If possible, move plants to a better ventilated place to dry out for a week or two. Fungicides can be applied, not only as a treatment but as a regular preventative, especially where the problem is a persistent one.



Viruses

Unlike bacteria and fungi, virus infections are hard to detect because they do not cause rapid destruction of leaves or flowers. Symptoms develop slowly over months or years. These include spotting, blotchy colour and distortion of leaves. The least observable but most damaging effect is a permanent stunting of growth. Do not assume that a plant is virus-free just because it has no symptoms; this can be a real trap even for experienced growers. A plant infected with a virus may not show symptoms for years, but will eventually succumb. It is important to be extra careful when propagating and using tools, as a virus transfers very easily from cut to cut on different plants. Using infected tools is assumed to be the most common way that viruses are spread within collections. After using a cutting tool on a plant, dip it in methylated spirits before moving to another plant. Clean any blades, preferably by the same method. There is no cure once a plant is infected with virus. It is best destroyed and replaced with a healthy one.



Virus: an alternative view

The foremost hybridiser and grower of echeverias, Dick Wright (see page 194), has investigated what is commonly referred to as 'echeveria virus', a group of symptoms characterised by mottled, twisted leaves often seen on poorly growing plants. He found that plants with this growth can be cured of their symptoms using streptomycin, an anti-bacterial drug. Viruses do not respond to antibiotics, which suggests that the symptoms are not viral but most likely caused by a mycoplasma (a very small, primitive form of bacteria). Dick believes this disease can be cured with heat. Infected rosettes are cut off from the stem (which is discarded) and immersed in water at 40°C for 30 minutes. After re-rooting, the new leaves should be free of symptoms if the temperature treatment has been properly administered. Note that temperatures above 43°C are usually fatal to leaf tissue, so exercise care with this method and use an immersion heater that can keep temperatures to within a few degrees.

“ Only a month earlier both of these plants were the same size. At that time the one on the top had only a few spots. It appears the larger plant has now become infected. Isolate any suspect plants and treat or destroy infected plants promptly before their symptoms spread!



▲ Newer stem growth roots quicker than older woody tissue, so keep stems as short as possible.

▼ The label in the pot states (right) that it is a crest, however it is no longer one. Reversions from crests are common.



(MC)

Propagation

Echeverias can be propagated in a number of ways and each has advantages and disadvantages. We have described each method in order of complexity. For those wanting more information on propagating echeverias and other succulents, we recommend the book 'Succulents: Propagation' (see inside flap for details).

Offsets

A number of smaller echeveria cultivars form dense clumps of rosettes where each individual rosette can develop its own root system. Clumps can be carefully divided or broken apart into individual rosettes and planted or potted up. This is best done at the beginning of the growing season in spring.

Cuttings

Many echeveria cultivars produce side stems. These smaller rosettes can be cleanly cut off at a manageable size and re-rooted. Before planting, cuttings usually need to have the cut surface dried out and callused. This is generally done by suspending or laying out the cuttings in a dry atmosphere for about two weeks until small roots are observed coming from the cut surface of the stem. Alternatively, the freshly taken cuttings can be left to dry out for one to three weeks in a well ventilated place out of the direct sun. Cuttings can then be potted in damp potting mix or planted directly into the garden, whether they have new roots or not. Cuttings that have little or no visible stem can simply be placed on the surface of damp soil or potting mix, where they will start growing. Cuttings that are callusing should be kept in bright light but not direct summer sun as they can dry out excessively. If kept in too much shade they can elongate and are also likely to become sunburnt when planted out.

Cuttings from crests

Crested plants (see page 50) can only be reproduced from crested cuttings. Plants are often inconsistent in their growth patterns and will often have side shoots and new stems which develop differently, becoming normal rosettes. If these are cut away and grown separately they have little chance of growing further crested tissue. These rosette cuttings are no longer considered cristates and labels need to reflect this. If too much of the crested plant is cut away, the remaining stem will often revert to the normal rosette growth form. Try to take crested cuttings where they naturally branch and where the flattened stem is narrow. Crested cuttings should have the lower leaves removed where practical. Callus for two weeks or until the first roots appear and then plant.

Head cuttings

Some echeveria cultivars, particularly the large leaved cultivars, seldom if ever produce side stems or offsets. Instead, they continue to grow taller until they become weaker and topple over. To avoid this, they need to be shortened by cutting the heads off the stems and re-rooting them every two or three years. The remaining stump, if cut correctly, will produce more rosettes which can be removed as they reach a manageable size and treated like other cuttings.



Cutting guide for solitary plants

With solitary plants, exactly where the cut is made along the stem is crucial in determining the outcome. Here are some possibilities.

A. Cutting here is known as pinching out. The aim of this technique is to pinch or cut out the growing point in order to force side stems, which are then recut as stem cuttings. The pinched out cutting is always discarded. This method does the least amount of visual damage to the plant. Such plants often develop into spectacular multiheaded clumps.

B. Sometimes called deheading. If cut here, the cutting is large enough to root and establish as a plant. Taking a cutting here will force new shoots on the remaining stem. A few leaves left on the old stem enable it to recover and for multiple new stem growth to develop. This method produces the most new stems.

C. Called deheading. Cutting here will produce a complete head that roots easily. The remaining stem may produce a few offsets or slowly wither.

D. Sometimes called deheading. Taking a cutting here will result in a sizeable stem attached. This common method is not recommended because it produces poor head cuttings that establish slowly. The lower stem will usually wither and die, producing one or two offsets at the most.

E. Taking a cutting at this point is not recommended. The upper portion will root poorly and grow slowly and the lower, old woody stem will die without producing offsets.



- ▲ Freshly cut heads or large stem cuttings can be left in an upright position in clean, empty and dry pots for up to four weeks. This method protects the underside of cuttings from sunburn and also helps to provide a cooler, shaded environment for early root development. The cuttings should preferably be supported by their leaves, so that the cut stem is not touching the bottom. Use smaller pots if need be.

- ▼ A leaf cutting of *E. 'Blue Curls'* which grew roots over six months but eventually died without producing any stem growth. If this leaf had a small slice of stem attached, it would have had a good chance of producing a new plant.



Leaf cuttings

Most of the small growing echeveria cultivars can be easily grown from leaf cuttings but this method seldom succeeds with the larger leaved cultivars. Leaves should be removed carefully from the lower stem. They need to retain as much of the leaf base as possible because this is where the essential growth tissue is. Lower leaves which show signs of discolouring or withering will fail, so discard these first before continuing on up the stem to remove the thicker, healthier leaves. Detached leaves need a callusing period, ranging from a few days to several weeks. They should be kept in bright light but out of direct summer sunlight, especially on days of very high temperatures. Spread them out in a dry, shallow container. Once leaves show the first signs of growing roots or shoots, they should be carefully planted in, or laid on, damp potting mix and then given a light watering or misting. To avoid the leaves curling, stick them in with the underside of the leaf uppermost or lay them on their sides. As new plantlets develop they should be given more frequent watering and gradually given more light. A single leaf cutting can often produce multiple plantlets which can later be divided into single plants once they have grown to a manageable size (about thumbnail size).

A more advanced form of leaf propagation, best used for the harder to grow types, involves using a razor blade to remove a leaf attached to a small sliver of the stem from the parent plant. The purpose of this is to include the bud which lies at the base of the leaf. To do this effectively the plant being propagated should be unpotted and turned on its side or upside down. At least a few older leaves are cut away before the younger and healthier leaves are reached. The closer to the apex of a parent plant, the fresher the leaves and the more successful they will be. To get the most propagation material, the parent plant may need to be totally sacrificed. Leaf cuttings taken this way can be treated as basic leaf cuttings as discussed earlier. Many of the large leaved cultivars that are difficult to offset can be propagated this way.

Propagating from flowering stalks

Several techniques can be used to encourage plantlets to form along the flower stalks. The success rate will vary, but with some cultivars it can be very successful.

Smaller echeveria flower stalks have small leaflets which can be carefully peeled away and treated as leaf cuttings. Larger hybrid echeverias may need to have these flower stalk leaflets cut off with a piece of stem attached (using a razor blade) and treated as leaf cuttings. The flower stalk should be at the stage where the first flower bud is just about to open and only the lowest thicker leaflets should be used. As flowering progresses, the middle and upper leaflets from the stalk can also be tried.

Another method is to wait until the first flower appears. Then the whole stalk is cut off and sectioned into pieces, each with two or three leaflets attached. These sections are stuck into dry potting mix or sand. Normal watering can begin after seven days. A number of things can happen as a result. Often only flower buds are produced from the stalk sections, but sometimes plantlets form. All new flower buds must be carefully removed as soon as they are identified as such. Sometimes the flower stalk sections form roots and grow plantlets.

Sometimes it is possible to force the whole flower stalk to produce new plantlets if all the flower buds are removed while still small. Initially, the plant will continue to try and produce more flower buds, but if these and all subsequent flower buds are removed, new plantlets usually form.



- ▲ Flower stalks can be used to produce new plants. One way is to remove the flowers and buds regularly from the uppermost portion of the flower stalk. As the flowering season finishes, the stem, with all its reserves diverted from flowering, redirects its energy into producing new plants on the flower stalk. Insert: Flowers before removal.

- ▼ Tightly packed and elongated plants of *E. 'Blue Curly'* growing in a warm and shaded place. When propagating for cuttings, grow plants in the shade as this makes stems stretch out, allowing for cuttings to be made easily.





(MC)

- ▲ A mass of echeveria hybrids all flowering together. Wind, bird or insect pollination will occur. Any seed harvested can be expected to give very low quality hybrids.
- ▲ The only way of getting a plant exactly like its parent is by vegetative propagation. Cuttings of *E. 'Perle von Nürnberg'* (left). Seedlings came up in a range of colours, none of which looked as good as the parent.
- ▼ One easy way of growing from seed is to use mini-hothouses in a sheltered area like this back verandah.



(DS)

Growing echeveria from seed

Most echeveria cultivars growing outdoors will produce abundant seeds if the flower stalk is allowed to mature. Echeveria fruits need to be picked when nearly fully ripe but should not be allowed to ripen and dry on the stalk because they shed seeds quickly as they mature. The seeds are very small and dust-like and can be separated from the husk remains and other material by running them through a fine sieve. The seeds can be planted immediately. The authors recommend that beginners experiment with harvesting, cleaning and growing common varieties of echeverias, such as *E. 'Imbricata'*, from seed before advancing further and growing seed of the more difficult cultivars. To get a really good hybrid from seed requires careful selection and techniques that take experience to master. See page 36 for comments on creating your own echeveria hybrids.

Echeveria seeds need to be surface sown and not buried. Seeds can be sprinkled on to the pre-dampened surface of potting mix. Specially prepared 'seed-raising mix' is sometimes available at nurseries and garden centres; otherwise, normal potting mix will do, especially if it is sieved to remove the larger pieces. Containers for seed raising can range from small, shallow pots to recycled food containers, especially those with plastic lids. Make sure to drill multiple holes into any recycled container. Once the pots or containers are filled with mix, spread 6 mm of coarse prewashed sand or fine gravel on top. Make sure it does not contain clay, which can harden when dry, forming a hard crust. The seeds are carefully sprinkled onto the sand and then watered with a fine, gentle mist to wash the seeds down among the



sand grains. Watering too much or too forcefully can float off the seeds. Too thick a gravel covering can cause the seeds to be washed down too deep. To minimise these problems it is best to pre-water the potting mix before sowing. Let the container drain and then gently move it, without shaking it, to a bright but shaded location that will be mild to warm but never too hot or cold. Cover with plastic or glass and check after ten days or so for seedlings which appear as tiny green dots. They can be missed easily, so inspect carefully. Once they are visible, the cover can be opened and gradually removed over a period of a month. With patience, some skill and a bit of luck, the seedlings will grow into thumbnail-size plantlets within six months or less.



▲ *E. elegans* flowered in the garden. Seeds were gathered, planted and grown for twelve months. The resulting seedlings displayed variation, indicating they were hybrids, not pure *E. elegans*. Only one or two of the finest of these should be kept, the rest disposed of.

◀◀ Five month old seedlings starting to show extreme variation. The reason for this is that the seeds came from one plant but the pollen came from multiple plants. Each flower on the same stalk may have had a different pollen parent. Hybrid seed is less viable, than pure species seed (top section); however, hybrid seedlings often grow faster than pure species (this is known as 'hybrid vigour').

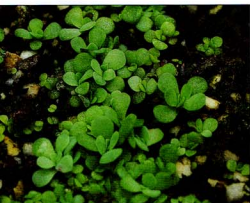
Creating new hybrids



- ▲ A fine, soft paintbrush is used to transfer pollen from one flower to another.
- ▼ Once dried, the fruits of echeverias can be crushed and then sieved from the husks.



- ▼ These tiny seedlings (about 2 mm across) are about six months old.



The basic principles of echeveria hybridising are quite simple. Having a goal in mind – a different or better hybrid, perhaps with more reddish colour, bent back leaves, rippled leaves or some other feature – is an essential starting point before actually beginning. Some hybrids (such as *E. 'Edna Spencer'*) have infertile female reproductive parts and are incapable of producing seeds but may still have fertile pollen. This should be kept in mind if using an unusual mutation or other aberrant hybrid.

The process of pollination is simple. Two plants showing good form and desirable characteristics are crossed by applying pollen, using a fine, soft artist's paint brush, from one individual to the stigma of the other. This process must be carried out while the flower of the intended seed parent is fresh and while the pollen from the other plant is mature (powdery). The pollinated flower needs to be marked, usually with a short piece of fine, coloured thread which is carefully draped over the base of the flower to mark those which have been hand-pollinated. The date and pollen parent for that flower are recorded in a notebook. As new flowers open on the flower stalk, additional repeats of the same cross or other crosses can be carried out, with notes recorded for each. After several weeks, the fruit swells and begins to change colour as it matures. Once the fruit is ripe it needs to be carefully snipped off and the seeds then sieved out, labeled and stored until sowing.

Echeveria seeds germinate best when fresh, so sow them within a few weeks of harvest. When the seedlings have about six leaves, they begin to show obvious signs of differentiation. From here on, the least attractive and weakest seedlings are removed regularly until only a few of the best ones remain. These choice plants are then allowed to grow to maturity, when they are again assessed. The best of these can be used for further crosses, either between themselves (inbreeding), out-crossed with unrelated plants, or back-crossed with one of the parent plants. Through repeated crossings over several generations, it is likely that a unique seedling will appear that is worthy of naming as an exceptional new cultivar. Ideally, it will have a look that is quite distinct from any other echeveria. Keep in mind that identical individuals of the new hybrid cultivar can only be reproduced through vegetative propagation.



E. elegans



▲ *E. 'Perle von Nuremberg'* with its parent species.



E. gibbiflora 'Metallica'

▼ *E. 'Doris Taylor'* with its parent species.



E. setosa



E. pulvinata





▲ Well labeled and documented echeverias collections are prized by growers and hold very good resale value. In this collection, the tags are very prominent, however other growers prefer to partly bury or hide the tags.

▼ Some plants are given names through unusual means. This plant was originally labeled 'new A' because it was an unknown plant which was new in the collection. Later, a cutting was given away and the name became E. 'New Age'. No doubt it has other more valid names however as it readily produces offsets it is likely to continue to be passed on with its invalid E. 'New Age' name.



(MH)

Understanding names

The word 'cultivar' is derived from the words 'cultivated' and 'variety'. A cultivar is any plant grown in cultivation for its horticultural merit that has been given a new name, regardless of its origin. It can be a selected form of a species occurring in the wild, or a selection from plants grown in cultivation. Any selection from hybrids, whether natural or artificially created, that is then propagated by cuttings is also considered a cultivar. Different looking seedlings from the same parents, whether from a species or a hybrid, can have new cultivar names. Spontaneous mutations such as crests, variegates, and monstrose plants can also be named as cultivars.

A hybrid is a new plant created by bringing together plants from two different plants and cross-breeding them. Seedlings raised from this process are all hybrids. Hybrids are usually uncommon in nature, but occur frequently by accident in large collections of echeverias that are grown together. Garden hybrids often look confusingly mixed, with the exact parents not apparent on simple examination. In cultivation it is possible to control which parents are used. Choosing two vigorous growing and attractive plants may produce stronger, more attractive seedlings than the parents. Well bred, distinct and attractive hybrids are always propagated further through cuttings and are often given cultivar names such as E. 'Big Red'. This name was probably chosen because the plant was bigger and redder than its parents. Hybrids sometimes have their parentage written after the plants name. This is called the hybrid formula e.g. *Echeveria* 'Black Prince' = *E. affinis* x *E. shaviana*. From this we can tell that E. 'Black Prince' is a hybrid of *E. affinis* and *E. shaviana*. The first parent name is always the seed parent and the last parent name is always the pollen parent (or at least should be!). Known parentage of a hybrid is of great value to people who wish to understand more about these plants. Hybrids which have a cultivar name no longer need to state the hybrid parentage if it is known. This information is usually only retained and available in more technical books.

As well as being able to hybridise within the genus, echeverias also hybridise quite easily with many different species from other genera within the family Crassulaceae, particularly the genera *Graptopetalum*, *Pachyphytum* and *Sedum*. These types of hybrids are referred to as intergeneric hybrids (see page 12). Any new hybrids resulting from echeverias and these other genera can no longer be referred to as echeverias. Instead, a hybrid with *Graptopetalum* as one of the parents is called x*Graptoveria* (only the last half of the word 'echeveria' is used). A *Pachyphytum* hybrid is called an x*Pachyveria*, and hybrids with sedums are called x*Sedeveria*. The lower case 'x' in

front of the hybrid genus name indicates that it is of hybrid origin. The 'x' is often left off the name. The resulting plants are all hybrids and the better ones have been given cultivar names, for example x*Graptoveria* 'Debby'. Those which can be mistaken for echeverias appear in our list of echeveria hybrids beginning on page 194.

Garden hybrids, which are very common, are usually of inferior appearance, and so should never be named. Even in a controlled environment, using the finest of parent plants, worthwhile attractive seedlings are not guaranteed. A carefully selected seedling of distinction is worthy of a cultivar name. The authors believe that far too many downright ordinary, and sometimes plain, plants are circulating with names that they do not deserve. For some suggestions on how to create worthwhile hybrids see page 36.

How plants get their names

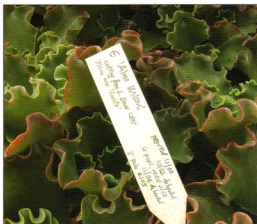
A new species discovered in the wild can only be given a name in a formal way. It needs to be described in Latin, usually by a taxonomist (a scientist who specialises in describing and naming plants). After a plant has been described for the first time its description and new name is always published in a scientific or specialist journal. Once published, it is considered a valid name that remains the current name unless revised in a similar publication.

Cultivars are different. Anyone can name a cultivar using almost any name they like. The more the name is used and circulated, the more it becomes entrenched and may ultimately be widely accepted. This often is how it happens, even though there are rules in place about how it should be done (see page 40).

Why names change

Species names change occasionally when scientists see the need to reclassify or rename a plant. Name changes have to be published in a scientific or specialist journal.

Cultivar names should never need to change, however there are different ways of writing a cultivar name. For example, the abbreviation 'cv' as a prefix was commonly used as part of every name. Earlier, plants of hybrid origin had the letter 'x' before the name. In 1995 an international code for naming horticultural plants was established. Cultivars names need only be capitalised and to have the name in single inverted commas. Often, a new hybrid or mutation makes its way into circulation without a cultivar name. It is common practice for nurseries wishing to sell new plants to give them a catchy name. Sometimes nurseries might be selling the same plant but under different names. Marketing names like these cause confusion and should be avoided. Instead, new plants should be named and published with a



▲ Good labeling is one of the most important ways in which plants retain their correct names. Include the full name, any alternative names and the source of the plants. Information on when the plant was repotted and propagated is also useful.

▼ When un-labeled, this selection of hairy-leaved cultivars is difficult to identify, even for experienced collectors. Keep accurate and legible labels and make sure to pass them on to anyone you give a cutting to.



(MH)



Two unnamed hybrids. In the USA, there are thousands of unnamed hybrids circulating in collections and via small nurseries which have not been given a recognised cultivar name. This came about because earlier hybridisers sold their surplus seedlings off to nurseries and only kept, named and propagated their very best plants. The less than the best were sold as mixed trays of seedling "E. gibbiflora hybrids". In some instances, the better ones were re-named by others. The abundance and diversity of many of the unnamed hybrids has allowed some to be confused with the better known named cultivars.



clear description of how the new cultivar differs from existing ones, preferably also with a photograph in accordance with the 1995 rules of nomenclature for cultivated plants. Each new plant will then have a valid name (one which can be substantiated from records), and all other marketing names for that plant should become redundant.

Name validity

Cultivar names can have different degrees of validity. Names which are clearly described in a dated publication and registered with the International Cultivar Registration Authority (ICRA) in accordance with the International Code of Nomenclature for Cultivated Plants (1995) have the greatest validity. These names will not be changed. In the past, a barely acceptable level of validity existed, where new names had only to be listed in catalogues or mail order plant lists with little or no accompanying description or picture. There was often no way of knowing what the plant was actually like or if it already had a prior name. Collectors and gardeners may also may label and distribute plants with new but non-documented names, e.g. 'Red Edge'. In such cases the plant may already have a more valid name. Examples like this are among the most troubling for echeveria growers. Without traceable records, such names are the least valid

ISI Echeverias

A list distributed by International Succulent Introductions (ISI) of California, USA, a non-profit organisation that has distributed rare and unusual succulents since 1958. These plants have always been described and often illustrated in the US and later in the British Cactus and Succulent Society journal. With such distinct plants with traceable origins, we regard these names as having the greatest validity:

ISI 322	<i>E. agavoides</i> 'Corderoy'	1960
ISI 171	'Blue Spur'	1962
ISI 454	'Ballerina'	1965
ISI 494	<i>E. gibbiflora</i> 'Carunculata'	1966
ISI 642	<i>E. chihuahuensis</i> 'Ruby Blush'	1970
ISI 645	'Victor Reiter' <i>E. agavoides</i> 'Prolifera' x <i>E. parrasensis</i>	1970
ISI 697	'Pinky' <i>E. shaviana</i> x <i>E. subrigida</i>	1971
ISI 804	'Parva' <i>E. purpusorum</i> x <i>E. pumila</i>	1973
ISI 1137	<i>E. nodulosa</i> 'Painted Beauty'	1979
ISI 1390	<i>E. pulvinata</i> 'Frosty'	1983
ISI 1467	'Frank Reinelt' <i>E. agavoides</i> f. 'Prolifera' x <i>E. colorata</i>	1984
ISI 1557	'Van Keppel 68937' Hybrid of <i>E. agavoides</i>	1985
ISI 1647	'Topsy Turvy' <i>E. ruyonii</i> sport	1986
ISI 1847	'Salsa Verde' <i>E. canaliculata</i> x <i>longissima</i>	1988
ISI 1848	<i>E. shaviana</i> x <i>E. bifida</i> A natural hybrid	1988
ISI 1989-51	'Patina' Hybrid of <i>E. laui</i>	1989
ISI 1992-45	<i>E. agavoides</i> 'Maria'	1992
ISI 2000-52	'Son of Pearl' Seedling of <i>E. 'Perle von Nurnberg'</i>	2000
ISI 2005-20	'Ghost Buster' <i>E. colorata</i> x <i>E. elegans</i>	2005

and create the most problems for collectors when they buy 'new' plants only to discover that they already have the same plant under another name.

Any cultivar name listed in this book that is accompanied by references as to its origin, such as the hybridiser's name, or an ISI reference, has the greatest validity. If no references are associated with a cultivar name it suggests a dubious name that may be invalid.

Traditionally, most cultivars have been distributed through mail order nurseries. Cultivars whose earliest records are mail order catalogues have a lower level of validity, as their plant descriptions were often inadequate. However, these catalogues still have some value. Many of the echeverias listed in mail order catalogues were named specifically by the nurseries for marketing purposes. Catalogues, even today, may be the only historical records for many cultivar names. Catalogues have collectively been a good source of useful information and by sorting through and comparing early entries for particular plants, some of the confusion surrounding names has been reduced. Sometimes names were spelt, written or used incorrectly and were copied onto labels and passed down the line to other growers. The four examples below are taken from catalogues (early 1980 vintage) and illustrate how names can vary. Catalogues today often contain mistakes. As a result, these mistakes are transferred from collector to collector. Some old errors from the 1970s still persist. The first name in each example below is the correct one.

Example A: an example of a well known German hybrid where five slightly different versions of the same name were used.

1. 'Perle von Nurnberg'
2. cv. Perle von Nurnberg
3. x 'Perle – von – Nurnberg'
4. Pearl of Nurenberg
5. Perle von Nurenberg

Example B: is a totally different situation where the correct name was assumed to be incorrect and so has been changed to match the appearance of the plant. The name of E. 'Silveron Red' was originally given by Dick Wright and named after an area in Los Angeles.

1. 'Silveron Red'
2. 'Silver on Red'
3. Silver Red



Some of the mail order catalogues from the 1980s (mostly from the USA) which offered echeverias.

A selection of plants purchased by mail order. Today, this is still the best way of obtaining the most correctly named cultivars and rarities. Mail order succulents usually arrive with bare roots but quickly re-establish once planted out or potted up.





(JA)

Unnamed plants

How is a plant identified if it has no name? The common method is to match its appearance as closely as possible to a picture and then put that name on the label. This method is fraught with problems.

The unnamed echeveria shown above looked like something that was pictured in a book, but when the season changed, so did the plant. It then seemed to match a totally different plant in the same book. Plant descriptions given in catalogues and books can be unintentionally misleading. Only notable features are described and most of these may only be seasonal.

Using a plant's appearance to match it with a name is complicated further by the fact that many echeveria cultivars closely resemble each other. Even a highly experienced grower can have difficulty identifying unlabeled plants.

Example C: a variegated cultivar.

1. 'Decora'
2. cv. Decora
3. decora x v. variegata
4. Decorum x cv. Variegatum

Example D: this plant was selling for several years under various names until it was officially named *Echeveria runyonii* 'Topsy Turvy' in 1986 by Myron Kinnach in the Cactus & Succulent Society Journal (USA). It is a mutation of *E. runyonii* with more upturned leaves.

1. *E. runyonii* 'Topsy Turvy'
2. Topsy Turvy
3. Runyonii monstrosa

Accidental name changes

In an ideal world, a plant's name would never change because plant lovers maintain meticulous records and keep up with the latest names others have used. They spell perfectly, always write out labels on permanent material and never mislabel any plant. Once they name a plant for the first time they publish it in a plant catalogue or journal with a clear description and photograph. They only keep the finest hybrid seedlings and dump the rest rather than sell to others who might give names to the less than perfect specimens. Unfortunately, this is not the case! As a result, many hybrid records are very poor. Many less perfect plants hardly look different enough to warrant a new name.

Far too often the names used by growers are wrong, or at best dubious. Here are some examples of what happens in the real world. Ask any succulent grower and you may hear some or all of the following:

Labels fall out.

Birds pull tags out.

Pots tip over and Labels get mixed up.

Labels fade.

Plants are bought without a label.

Labels only state: 'echeveria'.

Names are remembered and later forgotten.

Labels are written illegibly.

Labels are rewritten incorrectly.

Temporary names are used which later become widespread. Anyone who has grown succulents in pots for a few years will identify with these problems and sympathise!

One plant, several names?

Many cultivar names can be traced back to printed sources such as nursery catalogues and cactus and succulent journals. Some names, however, just seem to appear, often as a corruption of or misspelling of similar names. A recent search on the internet for 'blue echeveria' revealed a large number of names, some of which are traceable and documented but many of which are not. A selection of those names are listed on the right. How many different plants are involved? Certainly a lot less than the number on the list!

'Blue echeveria'?

'Big Blue'
'Blue Bedder'
'Blue Bird'
'Blue Butterfly'
'Blue Cloud'
'Blue Crinkles'
'Blue Heron'
'Blue Horizon'
'Blue Lagoon'
'Blue Mayes'
'Blue Metal'
'Blue Moon'
'Blue Surprise'
'Brink's Blue'
'Mexican Blue'
'Slate Blue'
'Western Blue'

✚ A selection of frilly 'blue' echeverias. These well grown plants are at the peak of their colour. If grown with more shade and given lush conditions, they would resemble each other even more. While all of them have cultivar names, some look very similar, even at a time when they are at their most distinct. Some are sister seedlings, having originated from the same hybrid parents.



Part 2: Photographic Library

This chapter contains 129 echeveria cultivars arranged in alphabetical order. Some of the cultivars are selected forms of species. They can be recognised by their full name listed immediately below their cultivar name. Where possible, we have chosen plants that illustrate typical seasonal changes experienced by plants grown in temperate climates. All plant photographs are natural and not digitally enhanced. Most plants illustrated represent those grown under excellent conditions with ideal light levels.

Size measurements are a guide only and are based on our experience with plants grown in Australia. Shade or excessive fertiliser often causes plants to grow much larger, while stress usually causes them to remain smaller.

» These genetically identical E. 'Blue Curls' (all the same age and grown under the same conditions) still show variation in size and colour. This common occurrence with echeverias makes identification based solely on size and colour difficult. Books often only use a single picture to represent a plant, suggesting a lack of variation.



Cultivars illustrated

'Afterglow'	page 52	'Double Delight'	page 93	'Morning Light'	page 139
'Alfred Graf'	53	'Dr Butterfield'	94	'Nubbles'	140
'Alma Wilson'	54	'Embossed Gem'	95	'Orpet's Chocolate'	141
'Alta May'	55	'Emerald Ripple'	96	'Painted Beauty'	142
'Aquarius'	56	'Etna'	97	'Pappy's Rose'	143
'Ballerina'	57	'Fantasia'	98	'Paul Bunyan'	144
'Bambino'	58	'Fasciculata'	99	'Perle von Nurnberg'	145
'Barbillion'	59	'Festival'	100	'Petticoat'	146
'Baron Bold'	60	'Fireball'	101	'Phyllis Collis'	147
'Ben Badis'	61	'Firelight'	102	'Pink Frills'	148
'Big Red'	62	'Flying Cloud'	103	'Pinky'	149
'Bittersweet'	63	'Frank Reinelt'	104	'Powder Blue'	150
'Black Knight'	64	'Frilly Maid'	105	'Princess Lace'	151
'Black Prince'	65	'Frosty' (<i>E. leucotracha</i>)	106	'Pulvicox'	152
'Blondie'	66	'Frosty' (<i>E. pulvinata</i>)	107	'Raindrops'	153
'Blue Bird'	67	'Giant Mexican Firecracker'	108	'Ramillete'	154
'Blue Curls'	68	'Gilva'	109	'Red Baron'	155
'Blue Waves'	69	'Gingerbread'	110	'Red Trump'	156
'Brilliant'	70	'Gimmei-Tennoyo'	111	'Ripples'	157
'Brown Sugar'	71	'Glitters'	112	'Rippling Waters'	158
'Candy Wright'	72	'Golden Glow'	113	'Rosa Lee'	159
'Captain Hay'	73	'Gypsy'	114	'Ruby'	160
'Carunculata'	74	'Harbingii'	115	'Ruby Lips'	161
'Chantilly'	75	'Harry Butterfield'	116	'Sadrinak'	162
'Christmas'	76	'Hoveyi'	117	'Scarletta'	163
'Chubbs'	77	'Icyle'	118	'Sea Dragon'	164
'Chunky'	78	'Imbricata'	119	'Set-Oliver'	165
'Cinderella'	79	'Jade Point'	120	'Shamrock'	166
'Clarence Wright'	80	'Japanese Purple'	121	'Silveron Red'	167
'Corderoyi'	81	'Joan Daniel'	122	'Spring Showers'	168
'County Fair'	82	'Jocelyn's Joy'	123	'Spruce-Oliver'	169
'Crinkles'	83	'Joy's Giant'	124	'Sugared'	170
'Crimoline'	84	'Leisal'	125	'Sundancer'	171
'Culibra'	85	'Lemon Twist'	126	'Thelma O'Reilly'	172
'Decora'	86	'Lilac Frost'	127	'Tippy'	173
'Deren-Oliver'	87	'Lipstick'	128	'Topsy Turvy'	174
'Dick Wright'	88	'Lola'	129	'Truffles'	175
'Dick's Pink'	89	'Lolita'	130	'Van Keppel 68937'	176
'Domingo'	90	'Macabeana'	131	'Vashon'	177
'Doris Taylor'	91	'Madamoiselle'	132	'Violescens'	178
'Dorothy'	92	'Mary Butterfield'	133	'Violet Queen'	179
		'Mauna Loa'	134, 135	'Virginia Lee'	180
		'Mexican Giant'	136	'Waladay'	181
		'Minas'	137	'Worfield Wonder'	182
		'Misty Cloud'	138	'Zorro'	183

Hybrid parents: some species used to create hybrids



“*E. harmsii*, one of the erect, branching species, has been used in a number of hybrids because it has the largest flowers of the genus. See pages 87, 100 and 169 for hybrids.



“*E. cante* has very large rosettes and has been used to create a number of powdery looking pink coloured hybrids. We believe that this species was used in nearly all cases where *E. subrigida* is cited as a parent. See pages 52, 90, 139, 147, 149 and 150 for hybrids.



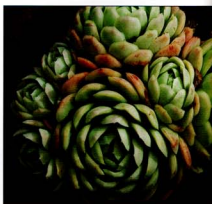
“*E. derenbergii* is a compact plant which matures at only 40-60 mm in diameter. It has short stemmed, attractive flowers, a trait which has been transferred to many of its hybrids. See pages 61, 73, 87, 129, 184, 185 and 187 for hybrids.



“*E. colorata* f. *lindsayana* is a large, strong, thick-leaved species that grows to 200 mm. Its bright leaf edging is variable but often quite distinct. See pages 104, 184 and 187 for hybrids.



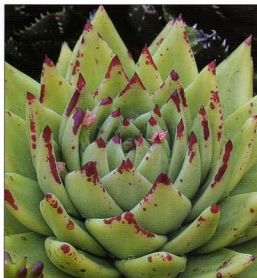
“*E. setosa* has the hairiest leaves of any echeveria. Rosettes grow to 100 mm and then begin clumping. See pages 91, 96, 112 and 165 for hybrids.



“*E. elegans* remains small and compact, growing to 100 mm in diameter. It is easy to grow and multiplies quickly. See pages 109, 145, 176, 179, 184 and 186 for hybrids.



► *E. agavoides*. This species has thick, compact leaves and offsets slowly with age. Its variable forms have been used to create many hybrids. Being drought tolerant and hardy, many of its hybrids make good garden plants. See pages 104, 109, 118, 120 and 176 for hybrids.



◄ *E. gigantea*. Along with the related *E. gibbiflora*, this has been used to create most of the larger frilly-leaved hybrids.



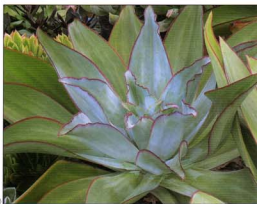
► A selection of *E. gibbiflora* forms. These, along with the closely related *E. gigantea*, have been used to create most of the large frilly-leaved hybrids, some of which can reach one metre in diameter.



◄ *E. shaviana* is a rather delicate shade-lover which grows to about 120 mm in diameter. It is the frillest of the small growing species. See pages 52, 65, 139 and 149 for hybrids.



► *E. subrigida* is a very large (to 400 mm) lush-looking plant with soft leaves. Hybrids created from it often have a white or bluish cloudy appearance. See pages 52, 90, 139 and 150 for hybrids.



◄ *Echeveria purpusorum* has striking markings and is generally a solitary and compact grower reaching 120 mm in diameter. See pages 61, 73, 116, 185 and 187 for hybrids.

(JA)

Frilly cultivars



E. 'Minas' often varies in frilliness depending on growing conditions and season. The four plants pictured come from stem cuttings taken from the same plant. The top picture shows no frilliness whatsoever. As light, heat and drier conditions increase, so do the frilly margins on the leaves.

We use the word 'frilly' for any plant that has a leaf margin ranging from wavy to tightly crimped. The degree of frilliness often changes with the seasons and growing conditions. Environmental stress is the easiest way to increase frilliness. Plants without roots, or plants which are about to die also develop exaggerated frilliness. If we do not state that a plant has frilly leaf margins, then it should be assumed that the plant has relatively straight leaves or leaf margins.

▼ A selection of leaves, all of which are from frilly cultivars.



Bumpy cultivars

Bumpy leaf surfaces on echeverias are referred to as 'carunculations'. We use the word 'bumpy' to describe the lumpy, 'blob-like' growths which appear to be erupting from the leaf surfaces of some cultivars. These features develop on young leaves only and are most regular or pronounced on mature plants that are grown under high light levels. Mature leaves without bumps will never grow any. All bumpy leaf surfaces covered in this book have been specifically bred for this feature and are often highly prized by collectors.

All hybrids with bumpy leaves trace their ancestry back to one plant originally circulated under the name 'Blister Leaf'. Today, this now uncommon cultivar is known more correctly as *E. gibbiflora* 'Carunculata'. The drawback with *E. 'Carunculata'* as a cultivated plant is that it has a fast growing, tall stem on which the leaves are spaced widely apart. It is also hard to propagate. By hybridising *E. 'Carunculata'*, the leaf bumps have been transferred to many of its offspring. The earliest of these hybrids are recognisable by their taller growth habit and by their leaves being spaced relatively far apart on the stem. Recent hybrids are more compact and also exhibit a greater range of leaf colours. For cultivars with carunculations, see pages 59, 60, 85, 88, 95, 97, 127, 134, 138, 140, 144, 153, 180 and 188.

▼ *E. gibbiflora* 'Carunculata'



Carunculations come in a variety of shapes and sizes. Even in their most extreme form (see page 188), they are nothing more than tissue eruptions from the leaf, as shown in the leaf cross-section below. Carunculations vary considerably from plant to plant and become more pronounced or extreme with maturity and increased environmental stress.



Crested cultivars



Crests vary in appearance from large leaved types (top) to the more typical examples (above and below). When crests age and become stressed, they often develop tight brain-like folds (below).

The terms 'crest', 'crested' and 'cristate' are forms of fasciation. This is a condition where the tip of a normal single stem distorts and becomes flattened and elongated. This growth first develops a fan shape and later distorts further when the fan shape buckles into a wavy tight coral or brain-like pattern.

Echeverias, be they species or hybrids, occasionally exhibit the cristate condition for no obvious reason. Crested plants frequently revert to their normal growth form. To keep them crested, remove any normal growth coming from the crest as it may eventually grow to dominate the plant at the expense of the crested growth. Crested echeverias are highly desired by some collectors, who pay high prices for new and rare forms. Crested plants are usually not given their own cultivar name. Instead, the original cultivar name is followed by either 'crest', 'cristate' or 'cristata'.

▼ A selection of crests growing in a shallow ceramic bowl.



(MB)

Sports and other oddities

While crests and variegates are the most commonly seen forms of spontaneous mutations in echeverias, several others occur and have been propagated in cultivation. These mutations are often referred to as a 'sport' or a 'monstrose' form and may display very unusual leaf shapes which do not always remain consistent as the plant grows. One well known exception is *E. runyonii* 'Topsy Turvy' (see page 174). This cultivar has a malformed leaf shape which appears reflexed or twisted back. *E. runyonii* 'Topsy Turvy' is exceptional because it seems to be consistent in growth from leaf to leaf and plant to plant. Rarely do mutations in this category maintain such uniformity. For further examples of sports and mutations of this kind see pages 86, 98, 103, 117, 124, 155 and 172.

✚ An unnamed sport of *E. 'County Fair'* (see page 82). Resembling the more common *E. 'Decora'*, this plant grows much larger.



(GG)



(MC)



(PW)

(top) Variegated *E. shaviana*.

(above) An unusual oddity called *E. 'Golden State'* on the left. It has a mottled, spotty appearance with an irregular leaf margin. On the right is a reversion to a non-mutated form.

(below) A more variegated sport of *E. 'Decora'*

(bottom) A sport of *E. 'Mademoiselle'* (see page 132).



Photo (above): Renee O'Connell



'Afterglow'

A Don Worth hybrid (*E. shaviana* x *E. subrigida*). Sister seedling to *E. 'Morning Light'* and *E. 'Morning Star'*. Mostly solitary, growing to at least 300 mm. The thin, rather weak and flaccid leaves are mostly pink which have a distinct waxy appearance.

Propagate from occasional offsets and deheading, which forces additional offsets to develop.



CC



(MB)

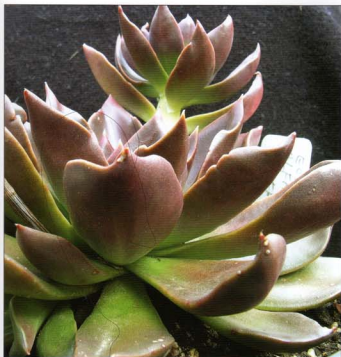


(GG)

‘Alfred Graf’

A Frank Reinelt hybrid with one of the parents being either *E. affinis* or *E. ‘Black Prince’*. Sometimes spelt *E. Alfred Graff*. Mostly solitary, growing to 150 mm, sometimes developing a few offsets to form large clumps. The leaves are always brownish and very similar in appearance and growth to *E. ‘Black Prince’*, but the plant is a less vigorous grower, and can always be recognised by having a kink or bend midway down the side of each leaf.

Propagate from occasional offsets and from flower stalk leaflets.



(MC)



(MC)



'Alma Wilson'

Of unknown origin. Also sometimes called *E. 'Lucita'* in Australia. Smaller than most frilly echeverias, growing only to about 250 mm. Not easily confused because of its characteristic uniform large frill and its paler colour compared to similar cultivars. Solitary growing and slow to elongate.

Propagation is by head cuts, which force offsets to develop.



'Alta May'

A large frilly Dick Wright hybrid that grows to about 300 mm. A solitary plant elongating on bare stems with age. Every three or four years, dehead, callus and plant for best results. It has a loose arrangement of fewer leaves than most similar frilly hybrids. Seasonally reddish on leaf margins and on older leaves, which have a notable waxy surface on pale purple.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.



(DM)



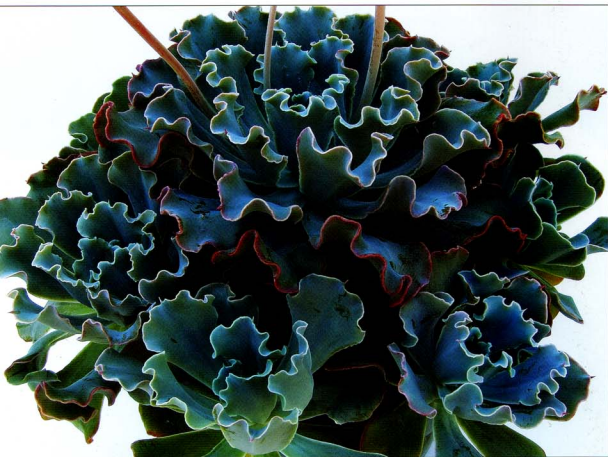
(PW)



'Aquarius'

A Lila Lillie hybrid. The name 'Berkeley' is sometimes given to this or a very similar plant. Rosettes to 125 mm, freely offsetting to form multi-headed clumps which can reach 400 mm. Stems do not elongate as much as other frilly hybrids. Seasonal colour is not very pronounced.

Propagate from offsets or by deheading, which forces additional offsets.



'Ballerina'



(DM)

A hybrid by Helen McCabe (ISI 454). Named by Don Skinner. A solitary, frilly plant growing to 250 mm then elongating on bare stems with age. Dehead, callus and replant every two to three years for best results. This plant has an unusual milky white/grey colour with seasonal pink, especially on the frilly margins.

Propagate by deheading which forces a few offsets to develop, and from flower stalk leaflets.



(DM)

'Bambino'

A recent Joyce Mueller hybrid from Australia. The seed parent is *E. colorata* 'Mexican Giant'. A mostly solitary grower to 250 mm. A flat, stemless plant with short, thick leaves of a metal bluish-grey colour. The easily marked leaves have a waxy coating that readily rubs off.

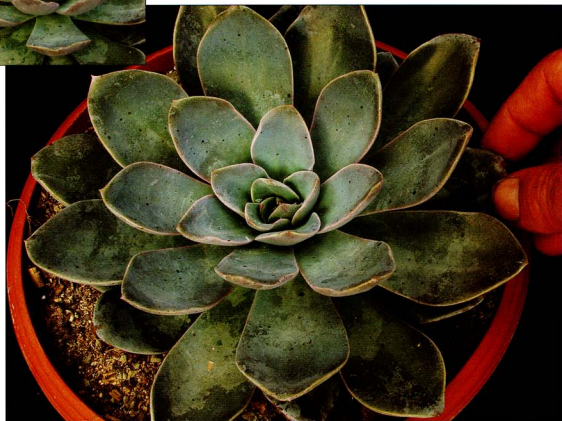
Propagate from occasional offsets and leaves.



(JA)



(JA)



(JA)

'Barbillion'

A Dick Wright hybrid. Solitary, reaching up to 400 mm in diameter and elongating slowly with age on a bare stem. Similar to *E. 'Paul Bunyan'* when young, but much larger growing. Leaf endings becoming frilly. Seasonal colours prominent.

Propagate from head cuts, which force a few offsets.



(BH)



(BH)

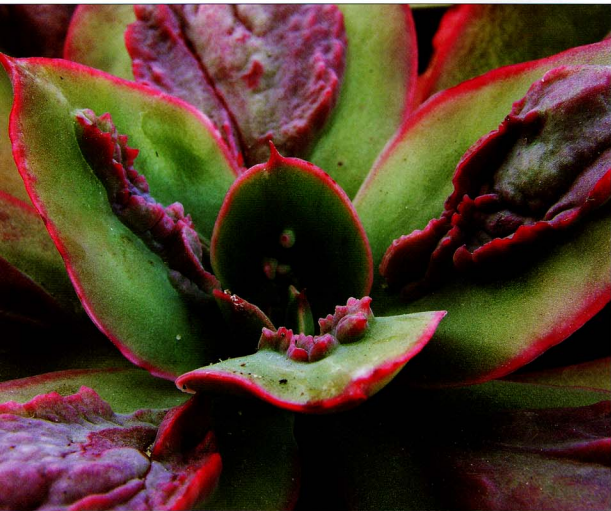
'Baron Bold'

A bumpy leaved hybrid by Dick Wright. It is solitary, slow and less vigorous than most other bumpy leaved hybrids. Easily distinguished by the jagged-looking perimeter of the bumpy area of each leaf. Needs to be deheaded, callused and replanted every three or four years for best results.

Propagate by deheading, which also forces a few offsets to develop.



(MC)



(MC)

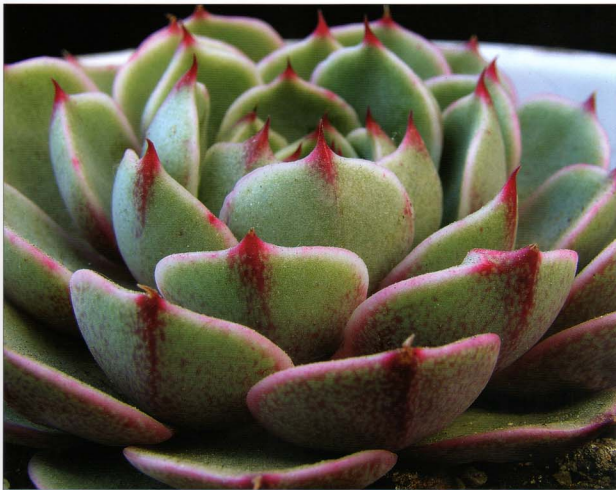
'Ben Badis'

A hybrid by Charles Uhl that was named by David Cumming in Australia. The parents are *E. purpusorum* x *E. derenbergii*. A mostly solitary growing plant to about 90 mm, which then occasionally slowly offsets to form dense clumps.

Propagate from occasional offsets and leaves, which can be very slow.



(MC)



(MC)

'Big Red'

Of unknown origin, may be a garden hybrid. Grows to 300 mm in diameter, slowly elongating on bare stems. This plant will last many years without requiring deheading. Pronounced seasonal colour change; plants grown under poor light can be green throughout. A crested form (illustrated) is common.

Propagate by deheading which forces a few offsets to develop, and from flower stalk leaflets.



(JA)



'Bittersweet'

A Dick Wright hybrid from 1963. In Australia this is sometimes incorrectly labeled as *E. 'Ginger'*. A large, solitary grower to over 300 mm, then elongating slowly on bare stem with age. Always very frilly along leaf margins and with a purplish colour throughout. May seasonally fade or increase in colour intensity. Dehead, callus and replant every three or four years for best results.

Propagate by deheading, which also forces a few offsets to develop.



(GG)



(PW)

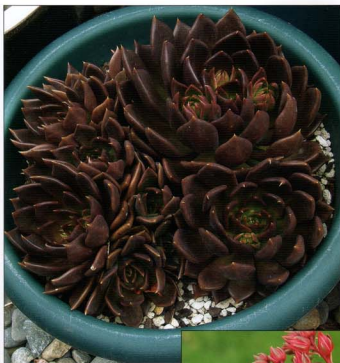
'Black Knight'

Of unknown origin. A hybrid of *E. affinis*, which apparently grew as a self-sown seedling at Abbey Garden Nursery, USA. Mostly solitary to 120 mm, occasionally offsetting. Stemless with distinctive thick leaves that are generally all upright. The striking red flowers are produced over a long period but mostly in autumn and winter. This plant is differentiated from *E. 'Black Prince'* by its narrow and longer leaves.

Propagate from the occasional offsets. Leaves are also successful.

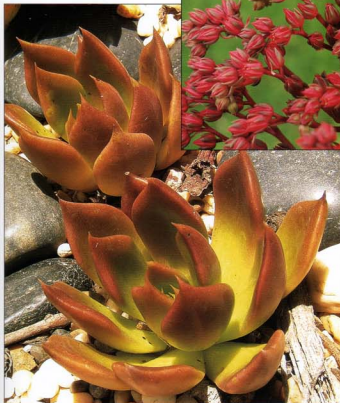


'Black Prince'



A Frank Reinelt hybrid (*E. affinis* x *E. shaviana*). *E. affinis* is very evident as being a parent, but there is no similarity to *E. shaviana*. *E. 'Black Prince'* is a hardy, thick-leaved plant growing to 150 mm then clumping with several offsets to form larger clumps. It is a distinctive plant with its chocolate brown to black leaf colour. However, plants grown in full summer sun often appear bleached (photo lower left). Striking red flowers are mostly produced in autumn and winter.

Propagates easily from leaves and from occasional offsets. Flower stalk leaflets can also be successful.



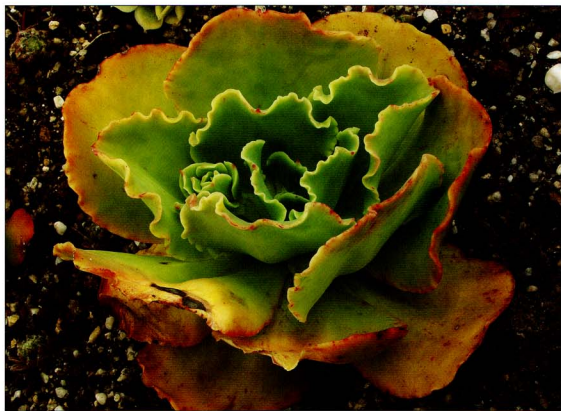
(BS)

'Blondie'

A Dick Wright hybrid of *E. pallida*.

Named by L. Lillie. A mostly solitary, frilly hybrid of a modest size to 160 mm, then elongating on narrow bare stems. The lime green colour shows little seasonal variation. Dehead every three or four years for best results.

Propagate by deheading, which also forces a few offsets to develop.



'Blue Bird'

A Frank Reinelt hybrid. Plants can grow to 250 mm, especially if the abundant offsets are regularly removed. Well grown plants take on an intense bluish-white colour with edges reddening during autumn and winter. Avoid touching the leaves as the waxy coating rubs off easily.

Propagate from offsets or leaves.



(MC)



(JA)

'Blue Curls'

A Frank Reinelt hybrid which is a sister seedling to 'Blue Waves'. Mostly solitary, growing to about 250 mm. It is slow to elongate and needs to be deheaded, callused and replanted every three to four years for best results. Always frilly, regardless of the season or climate. Reddish colours can be more prominent in spring and autumn, especially on the leaf margins.

Propagate from head cuts, which force a few offsets. Flower stalks may also be successful.



'Blue Curls'

'Blue Waves'



(MC)

'Blue Waves'

A Frank Reinelt hybrid which is a sister seedling to *E. 'Blue Curls'*. It can grow to 250 mm or more, is mostly solitary and later elongates on bare stalks with age. Needs regular deheading, callusing and replanting every three or four years for best results. Looks similar to *E. 'Blue Curls'* but is less blue and more pale green in colour. *E. 'Blue Waves'* shows much less, if any, seasonal reddish colour.

Propagate from head cuts which force a few offsets. Flower stalks may also be successful.



(MC)

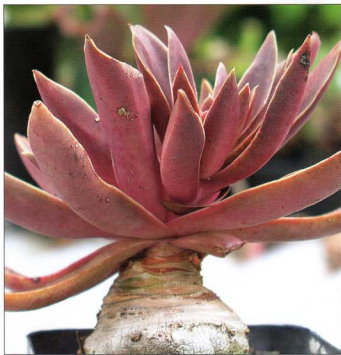
'Brilliant'

Of unknown origin. Also called *E. 'Red Edge'* in Australia. Plants grow to 250 mm, then offset profusely to form larger clumps. May elongate on short, bare stems. Seasonal colour changes are very pronounced. A hardy species for the garden.

Propagate from offsets, dividing large clumps or by deheading, which forces more offsets to develop.



'Brown Sugar'



Of unknown origin. A mostly solitary plant to 200 mm. Will often develop an unusual swollen trunk with age. Leaves very brittle with a rough-textured upper surface.

Propagate from leaves or flower stalk leaflets.



'Candy Wright'

A Dick Wright hybrid which is large and frilly. A solitary growing plant to about 250 mm, then elongating on bare stems with age. Dehead, callus and plant every three or four years for best results. Little seasonal variation in leaf colour and growth habit.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.





(MC)

'Captain Hay'

= *E. derenbergii* 'Captain Hay'

A small, rather compact hybrid to 80 mm, then offsetting profusely to form compact clumps to over 120 mm. Very hardy and easy to grow. Flowers are large in comparison to plant size and are very regular on short stalks. This plant is ideal as a small, flowering pot plant.

Propagate from offsets or dividing large clumps.



(MC)

'Carunculata'

= *E. gibbiflora* 'Carunculata'

Solitary rosettes to 250 mm, elongating quickly on very tall stems. Each leaf and stem can be spaced 30-40 mm apart. Can grow to 600 mm tall in twelve months. Needs to be deheaded, callused and replanted every two to three years. All bumpy hybrids in existence today are thought to have originated from this single parent. See page 49 for further information.

Propagate from head cuts and one or two forced offsets.



'Chantilly'



(MC)

A Dick Wright hybrid. Solitary, growing to 350 mm, eventually elongating on bare stems. Very frilly when mature, but younger plants look quite different and can be mistaken for a number of other hybrids (see *E.* 'Dick's Pink'). May need to be deheaded, callused and replanted every three or four years for best results. Seasonal colour changes are mainly limited to the leaf margins.

Propagate from flower stalk leaflets and by deheading, which forces a few offsets to develop.

Photo left: *E.* 'Chantilly', at the upper left, with similar looking hybrids.



(MC)

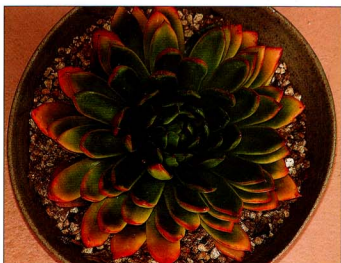
'Christmas'

Of unknown origin. Parentage appears to be *E. pulidonis* and *E. agavoides*. Rosettes grow to 150 mm, eventually offsetting to form larger clumps. The name 'Christmas' has also been used for a frilly hybrid.

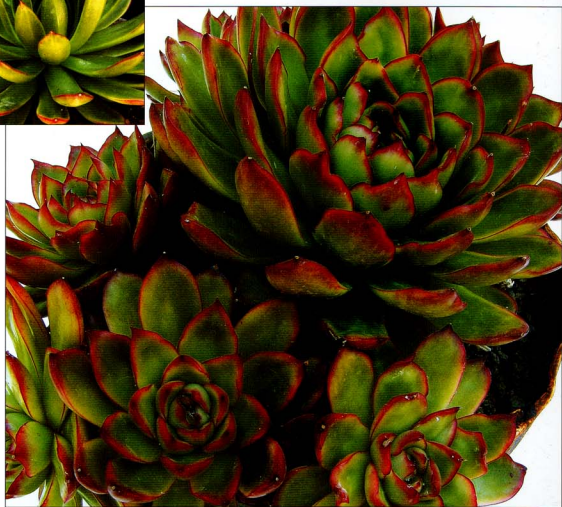
Propagate from offsets or by leaves. Flower stalk leaflets can also be tried.



(MH)



(MH)



(MH)

‘Chubbs’

A hybrid of unknown origin (*E. linguifolia* x *E. ciliata*). Named by Bev Spiller in Australia. A vigorous grower to 110 mm, then offsetting profusely to form dense, larger clumps. Leaves have a prominent white line down the back of each leaf which can help differentiate this plant from similar green echeverias.

Propagate from offsets or divide larger clumps. Also easy from leaves.



(BS)



(BS)

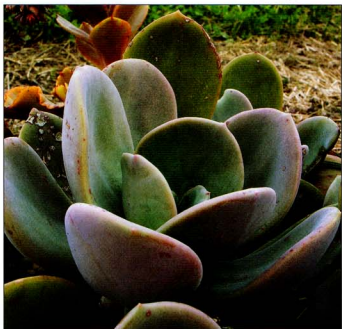


(BS)

'Chunky'

A recent Australian hybrid of garden origin. Named by Michele Kapitany for its unusually thick and fleshy leaves. Solitary, growing to 200 mm then elongating on bare stems. Dehead, callus and replant every three or four years for best results. Mostly blue, but turning to pink in the cold of autumn and spring.

Propagate from leaves and by deheading which forces a few offsets.



'Cinderella'



(PW)

A large, frilly Dick Wright hybrid growing to about 300 mm, then elongating on bare stems with age. Dehead, callus and replant every three or four years for best results. Superficially may be confused with E. 'Mauna Loa' but is much smaller and never develops the bumpy leaf surfaces.

Propagate by deheading, which forces a few offsets to develop and from flower stalk leaflets.

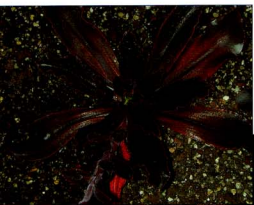


(PW)

'Clarence Wright'

A Dick Wright hybrid (*E. fulgens* var. *obtusifolia* x *E. fimbriata*). A solitary growing plant to 200 mm then elongating on bare thin stems. Can be a slow or weak grower. deheading is also recommended every three or four years. Leaf shape and colour can vary dramatically depending on climate and conditions. Leaves often rather brittle and can be rough textured on the upper surface.

Propagate by deheading which forces one or two offsets.





'Corderoyi'

= *E. agavoides* 'Corderoyi'

A form of the species selected from the wild because of its distinct appearance. An older name for this plant is *E. agavoides* 'Lipstick'. Plants are short stemmed and grow to 140 mm, clumping to 200 mm with age. This hardy plant is recommended for the garden.

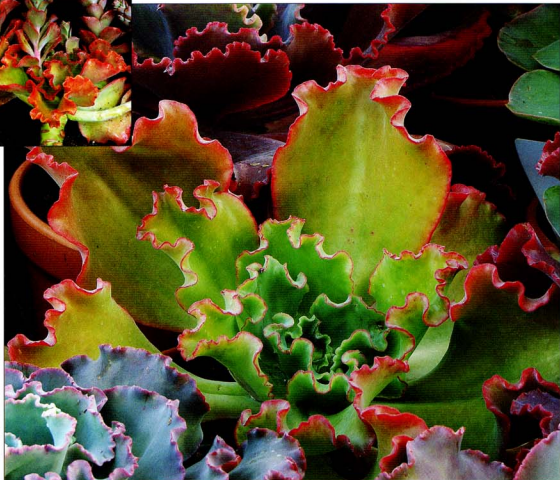
Propagate from offsets; leaves are possible, but very slow.



‘County Fair’

A large, frilly hybrid of unknown origin. Grows to 250 mm, then elongating with age on bare stems. Mostly solitary with a loose arrangement of relatively few leaves. Autumn colours are its main attraction along with very attractive flower stalks. These stalks are covered with larger than normal leaflets (see insert), which in their autumn colours add to the appeal of this plant.

Propagate from flower stalks and flower stalk leaflets.



‘Crinkles’

A Harry Butterfield hybrid. Solitary to 200 mm, elongating as it ages on leafless stems. Needs to be deheaded, callused and replanted every three to four years for best results. Plants are a silvery bluish-grey colour which varies little with the seasons. Distinctly frilly leaf margins.

Propagate from head cuts, which force a few offsets. Flower stalks may also be successful.



(PD)

(PW)



(PD)

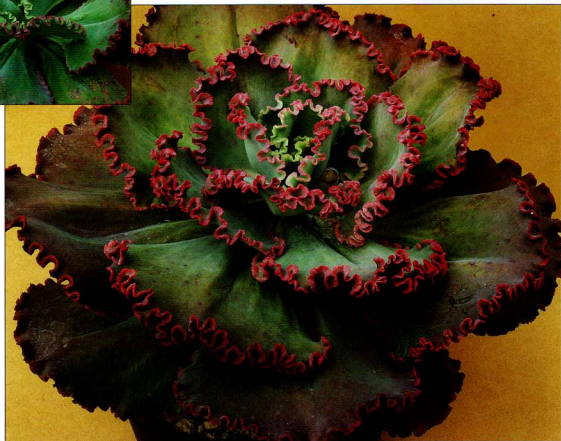
'Crinoline'

A hybrid seedling from Dick Wright's nursery that was named by Bev Spiller in Australia. Its frilly margins are more pronounced than similar hybrids. Solitary, growing to about 300 mm then elongating on bare stems with age. Dehead, callus and replant for best results every three or four years.

Propagate by deheading which forces a few offsets to develop, and from flower stalk leaflets.



(PW)



(PW)

'Culibra'

A very bumpy Dick Wright hybrid. Solitary, growing to about 250 mm, then elongating on bare stems with age. Dehead, callus and replant every three or four years for best results. Can be a weak grower, especially compared with other similar bumpy hybrids. Always has rolled leaves with a prominent tube-like opening at the ends.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.



'Decora'

Named by Eric Walther. It is a variegated plant which appears to have developed as a spontaneous mutation of *E. gibbiflora* 'Metallica'. A mostly solitary plant to 130 mm, then elongating on narrow bare stems. Needs to be deheaded, callused and replanted every two or three years for best results. All variegated echeverias are more delicate than non-variegated ones. Protect from summer sun.

Propagate by deheading, which also forces a few offsets to develop. Photo below: The larger plant is a reversion from the smaller *E.* 'Decora' (appears to be *E. gibbiflora* 'Metallica').



'Deren-Oliver'



A Victor Reiter hybrid of *E. harmsii* and *E. derenbergii*. Rosettes grow to 60 mm, profusely offsetting to form large clumps. Stems will elongate and may become bare by losing their lower leaves if stressed, but well grown and watered plants will remain densely leafed and appear stemless. Flowers are comparatively large and a highlight of this echeveria.

Propagate from offsets or by dividing larger clumps.



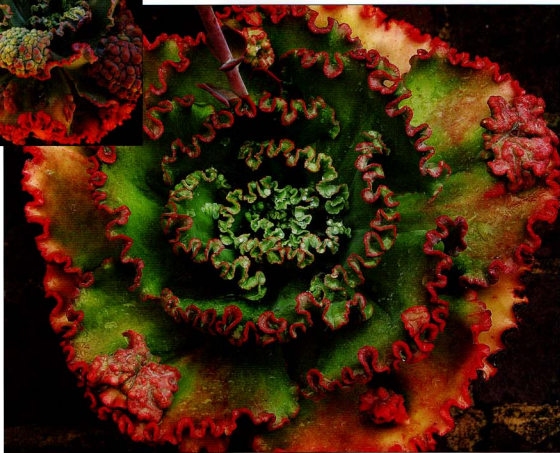
'Dick Wright'

Created by Dick as a hybrid and named by his wife Ruth. Solitary, to 300 mm, elongating with age on bare stems. Always very frilly, not always bumpy. Mature plants in colder climates have been known to never develop bumps. In ideal conditions the leaves erupt with multicoloured bumps which can cover much of the leaf's upper surface. Similar to E. 'Mauna Loa' but much greener.

Propagate from head cuts which a force a few offsets. Flower stalks are also possible.



(MH)



(DM)

'Dick's Pink'



Of unknown origin and should not be associated with Dick Wright. Solitary, growing to 200 mm and elongating on bare stems. Needs to be deheaded, then callused and replanted every two to three years for best results. Seasonal colour changes are very pronounced.

Propagate by deheading, which forces offsets or from flower stalk leaflets.



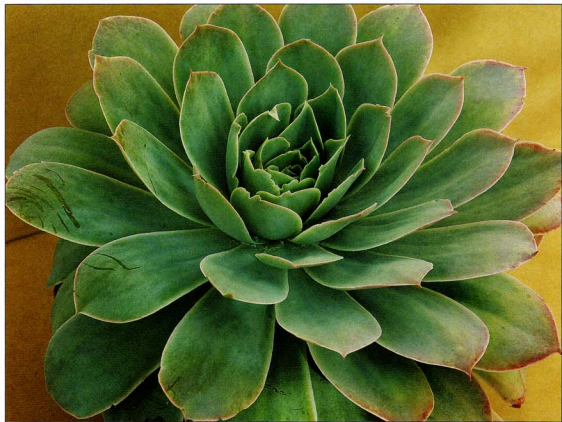
'Domingo'

A Dick Wright hybrid (*E. subrigida* x *E. runyonii*). A large strong grower to about 250 mm. Mostly solitary with a uniform blue/white colour. A thin, waxy, white covering on the leaves rubs off at the slightest touch. Keep fingers away to have the plant look its best.

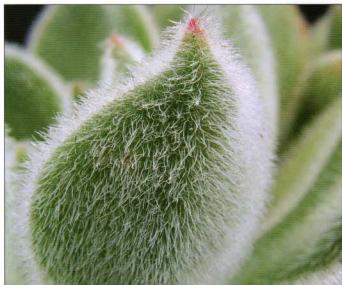
Propagate from occasional offsets or from leaves.



(BS)



(PW)



'Doris Taylor'

A 1932 hybrid by W. Taylor (*E. pulvinata* x *E. setosa*). A very hairy-leaved plant growing to 140 mm, then freely branching on short stems to form clumps of 200 mm or more. A hardy echeveria with thick leaves which is ideal for temperate garden situations. Copes well with light frost. Relatively large flowers on short stalks are a highlight.

Propagate from stem cuttings and leaves.



'Dorothy'

A Harry Butterfield hybrid that is sometimes incorrectly called *E.* 'Curly Locks' or *E.* 'Party Dress'. A small, frilly cultivar growing to 200 mm, then elongating on bare stems with age. Rosettes often decrease in size after the second or third year. Dehead, callus and replant every three or four years for best results. Leaves are often wavy or only slightly frilly when compared to similar cultivars.

Propagate by deheading, which forces a few offsets to develop.



'Double Delight'

A hybrid (?) named by Lila Lillie. Very closely related to *E. 'Delight'* (pictured lower right). *E. 'Double Delight'* has a smaller growth habit and almost double the amount of frilly edging on the leaves. It grows to 200 mm, then elongates on bare stems with age. Dehead, callus and replant every three or four years for best results.

Propagate by deheading, which forces a few offsets to develop, or from flower stalk leaflets.



(PW)



(PW)

'Dr Butterfield'

= *E. runyonii* 'Dr Butterfield'

Of unknown origin. This plant circulates in Australia and New Zealand and appears to be just a selected form of *E. runyonii*. Solitary, growing to 250 mm on short stems.

Propagate from head cuts, which force a few offsets.



'Embossed Gem'

A Harry Butterfield hybrid. Solitary plants grow to 250 mm, later elongating on relatively short stems. The leaf bumps are much less pronounced than on *E. 'Paul Bunyan'*, which it closely resembles. *E. 'Embossed Gem'* has a distinctly regular division down the middle of the bumpy area.

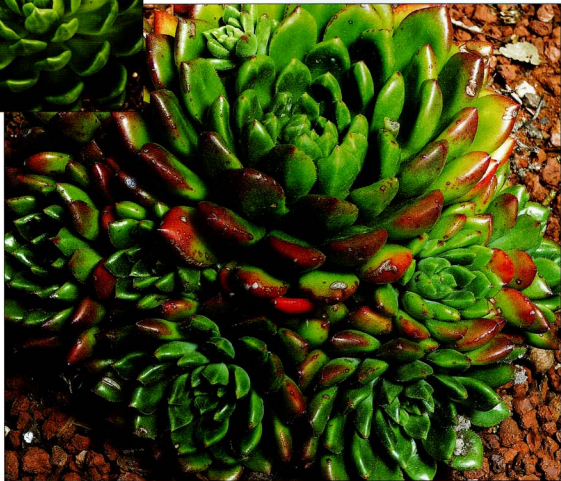
Propagate from head cuts which force a few offsets.



'Emerald Ripple'

A hybrid of *E. setosa*. A small, rather compact grower to 110 mm then freely offsetting to form dense clumps to over 150 mm. Plants have smooth leaves, with sparse, very tiny short 'teeth-like' hairs on leaf margins. Hardy in the temperate garden.

Propagate from leaves, flower stalk leaflets and offsets.



'Etna'

A Denise Manley hybrid. Solitary, growing to 300 mm then elongating with age. Distinctive waxy blue/grey colour without pronounced seasonal variation.

Propagate from head cuts and a few forced offsets. Flower stalks are also possible.



(H)



(D)

'Fantasia'

One of the new hybrids from Renee O'Connell at Altman Plants, USA. This variegated plant grows to 250 mm. Plants vary in the degree of variegation and in seasonal colour.

Propagate by head cuts, which force a few offsets.



(KA)



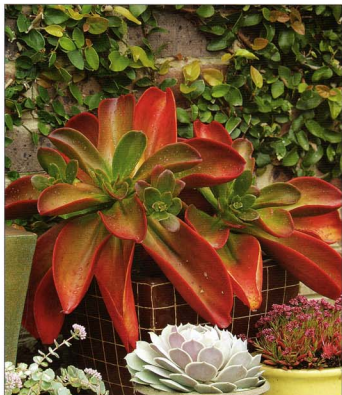
(KA)

'Fasciculata'

= *E. fimbriata* 'Fasciculata'

Of unknown origin, probably a selected form of *E. fimbriata* (a species). It has been suggested that 'Fasciculata' is a misspelling of 'fimbriata'. Either way, this cultivar has been circulating widely for many decades and is well established. *E. 'Fasciculata'* is mostly solitary, growing to about 400 mm with a loose arrangement of leaves. It elongates with age on bare stems. It needs to be deheaded, callused and replanted every three or four years for best results.

Propagate by deheading, which forces a few offsets to develop.



(DM)



(DM)



(JM)

'Festival'

Of unknown origin. One of the parents is *E. harmsii*. A freely branching low shrub which normally grows to 300 mm. Large red flowers during summer.

Propagate from cuttings or by leaves.



(MC)

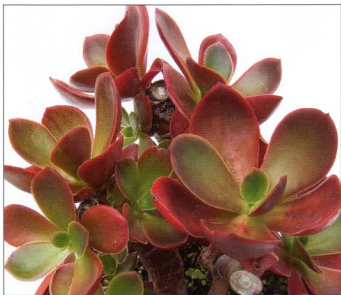


(MC)

'Fireball'

Of unknown origin. Sometimes mislabeled E. 'Fire Opal' in New Zealand. A solitary grower to about 200 mm then elongating with age on a bare stems. The name is probably derived from its circular leaf arrangement and the seasonal colour that in autumn turns a burnt orange/red.

Propagate by deheading, which forces numerous offsets to develop (photo left).



(GG)



(JF)



(DM)

'Firelight'

A Dick Wright hybrid. Always frilly, growing to 300 mm, then elongating on bare stems with age. Dehead, callus and replant every three to four years for best results. This plant is mostly a bluish-green colour, but when planted outdoors in cooler climates its outer leaves appear to light up with a fire-like colour.

Propagate by deheading, which forces a few offsets to develop and from flower stalk leaflets.



(BS)



(JA)

'Flying Cloud'

A Dick Wright hybrid which has both monstrose and variegated leaves. A variable plant with rather unstable growth patterns. Usually growing to no larger than 150 mm. Can be a delicate grower, elongating on bare stems with age. For best results dehead, callus and replant every two to three years. Note the two different examples of *E. 'Flying Cloud'* on this page. The one below is an interesting form with upturned leaves.

Propagate by deheading, which forces a few offsets to develop and from flower stalk leaflets.



CC)



(PW)

'Frank Reinelt'

His own hybrid of *E. agavoides* 'Prolifera' x *E. colorata* (ISI 1467). A slow, compact plant that can have a few offsets with age. A hardy plant that does well in temperate climate gardens.

Slow to propagate from offsets and leaves.





(PW)

'Frimly Maid'

A Harry Butterfield hybrid. Always frilly and mostly solitary, growing to 200 mm, then elongating with age on bare stems. Dehead, callus and replant every three to four years for best results. Mostly blue in colour and with little seasonal variation except on the outer older leaves, which become orange or red. The degree of frilliness is seasonally variable. This plant looks very similar to several other named cultivars.

Propagate from occasional offsets and by deheading, which forces more offsets to develop.



(MC)

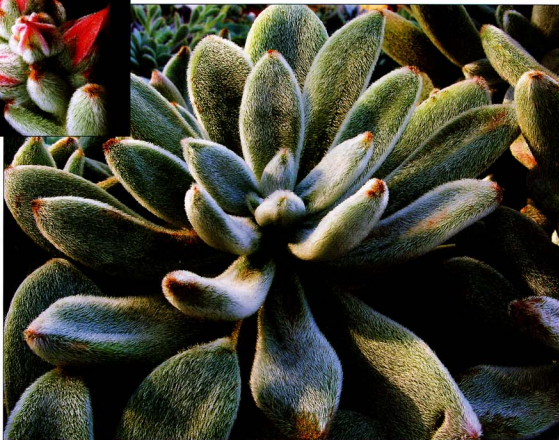
'Frosty'

= *E. leucotricha* 'Frosty'

Named by Dick Wright. A natural form of *E. leucotricha* selected for its distinctive whiter leaves. Can grow to over 120 mm, then slowly branches to form a loose clump about 200 mm across. This is the original cultivar with this name, the second (following page) is more widely grown but was named at a later date. The similarity of these two plants with the same name will continue to cause confusion. Propagate from stem cuttings.



(JA)



(JA)

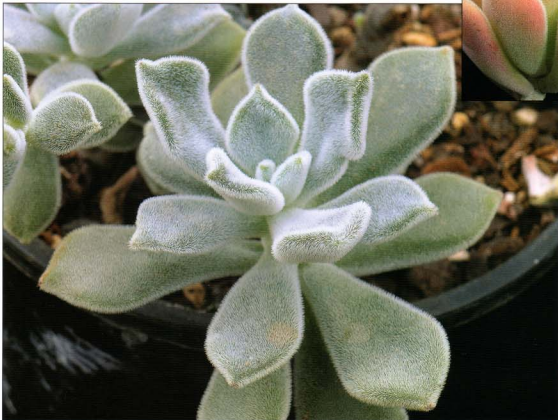


(MC)

'Frosty'

= *E. pulvinata* 'Frosty'

A natural form of *E. pulvinata* selected for its white, almost velvety, leaves. Always hairy, thicker outdoors where the leaves appear almost white. Grows to 80 mm then elongates on bare stems, after which it branches to form a shrub about 200 mm across. A nursery has re-named this plant *E. 'Suave'*, which is a valid name but has not been widely accepted. Propagate from stem cuttings.



(MC)



'Giant Mexican Firecracker'

A Charles Uhl hybrid of *E. pulvinata*. Grows to 130 mm in diameter then elongates with age on tall bare stems. Can branch slowly to form a loose shrub about 300 mm in height. Mostly green with a distinctive velvety sheen on the leaves. Above average size flowers of a striking orange-yellow produced on relatively short stalks.

Propagate from stem cuttings and by deheading, which forces further stems to develop.



(MC)

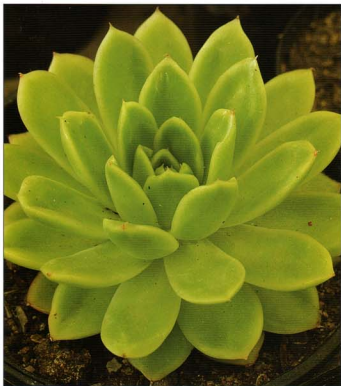


'Gilva'

A van Keppel hybrid (*E. agavoides* x *E. elegans*). Sometimes incorrectly called *E. simulans*. A strong, compact grower to about 120 mm, then freely clumping with age to about 200 mm. Very hardy. Leaf colours can be variable as there are several forms circulating with different cultivar names. The eight plants grouped in the bottom picture are all examples of *E. 'Gilva'* growing together to demonstrate that these differences are not just environmental. Only some clones turn deep red in autumn and spring.

Propagate from offsets or by dividing large clumps.

Below: The crested form.



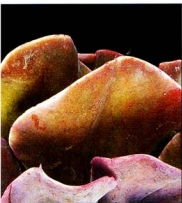
'Gingerbread'

Of unknown origin. A large, solitary grower to 250 mm, then elongating on bare stems with age. For best results, dehead, callus and replant every three to four years. The thick leaves have a barely wavy or frilly edging. Leaves appear irregularly folded. Leaves often have a light coloured margin (see insert). Little if any notable seasonal colour changes.

Propagate by deheading to force a few offsets to develop, and from flower stalk leaflets.



(GG)



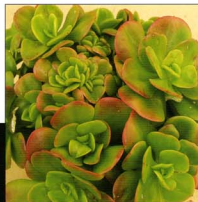
(PW)

‘Ginmei-Tennyo’



Of unknown origin, probably a Japanese hybrid Of *E. multicaulis*. Grows to about 120 mm then elongates on thin bare stems. Branches naturally with age. May need deheading and replanting every two or three years to help keep the plant from becoming too leggy.

Propagate from stem cuttings or by deheading, which will force more stems to develop.



'Glitters'

A hybrid of unknown origin. Most probably has *E. setosa* as one of its parents. A short, compact grower to 110 mm, then offsetting slowly to form larger clumps. Leaves always green, having tiny bristle-like hairs covering the surface.

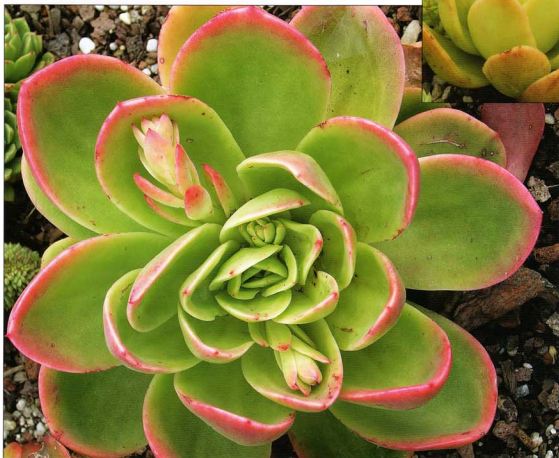
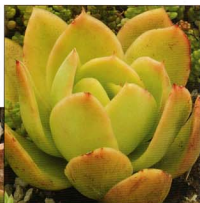
Propagate from offsets or by dividing large clumps. Leaves also work well.



‘Golden Glow’

Of unknown origin. A solitary grower to about 200 mm then offsetting to form clumps of over 300 mm. Only develops its golden-yellow colour during summer and when grown outdoors. A hardy, almost stemless plant that does very well in many garden situations.

Propagate from offsets and flower stalk leaflets.



'Gypsy'

A Dick Wright hybrid (*E. gibbiflora* x *E. 'Berkeley'*). A large, solitary grower to 600 mm, then elongating on bare stems with age. Dehead, callus and replant every three or four years. Leaves are nearly as wide as they are long, with a noticeable depressed valley down the centre of the leaf.

Propagate by deheading, which forces a few offsets to develop, or from flower stalk leaflets.



(GG)



(DW)



(MB)

'Harbingii'



(PW)

A hybrid of unknown origin common in New Zealand. Not to be confused with *E. halbingeri* (a small growing species). This hybrid is a large, solitary plant growing to about 300 mm, then elongating on bare stems with age. Dehead, callus and replant every three or four years for best results. The leaves are always frilly and often fold inwards.

Propagate by deheading, which forces a few offsets to develop, and also flower stalk leaflets.



(GG)

'Harry Butterfield'

A hybrid of unknown origin that was named by Dick Wright. A solitary grower to 300 mm, then elongating on bare stems with age. Dehead, callus and replant every three or four years for best results. The often reddish-edged leaves are always blue with a fine, frilly and sometimes wavy leaf margin. This cultivar often develops a split growing point which grows into two equal-sized rosettes.

Propagate by deheading, which forces more offsets to develop, or from flower stalk leaflets.

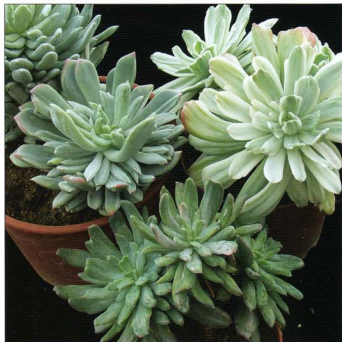


(PW)



(GG)

'Hoveyi'



(JA)

First described in the USA in 1910. A sport of unknown origin, thought to be related to *E. secunda*. Grows to 150 mm. May develop a short stem and become loosely offsetting with age. Plants are vegetatively unstable and highly variable (see left). Some examples grown from offsets have malformed leaf margins, others have differing degrees of variegation. The reversion of *E. 'Hoveyi'* is not variegated and has short, and well defined blue/grey leaves. This reversion is sometimes called *E. 'Zahni'*.

Propagation of *E. 'Hoveyi'* is from offsets. Headcuts will force numerous offsets on the old stems.

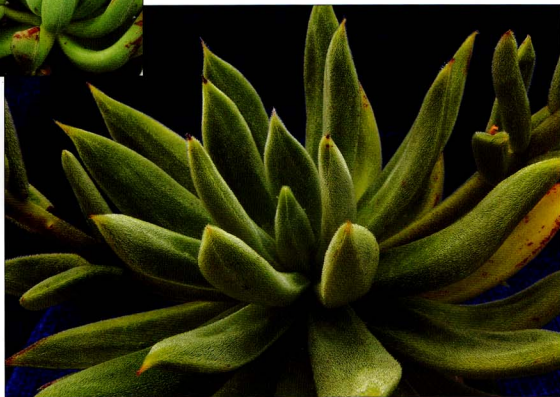


(PW)

'Icycle'

Of unknown origin. The parents are *E. agavoides* x *E. leucotricha*. The mis-spelling 'icycle' (instead of 'icicle') appears to be intentional. Mostly solitary, growing to about 150 mm, then elongating on short stems. Slow growing with occasional offsets which may develop with age. Its very thick leaves are covered with almost microscopic white hairs.

Propagate from occasional offsets, leaves or flower stalk leaflets.





'Imbricata'

A French hybrid by M. Deleuil from the late 1800s; the parents being *E. glauca* x *E. gibbiflora* 'Metallica'. Mostly solitary, growing to 250 mm, then elongating with age on bare stems which grow in a sprawling habit on the ground. Older specimens can offset freely to form loose clumps to over 400 mm. *E.* 'Imbricata' is very hardy, making it one of the world's most commonly used succulents in temperate gardens today.

Propagate from offsets or by dividing large clumps.

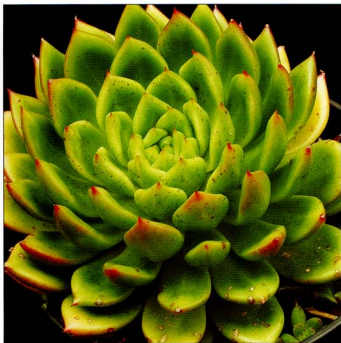


'Jade Point'

Of unknown origin. Hybrid of *E. agavoides* or possibly a cultivar of *E. 'Gilva'*.

Growing to 180 mm then profusely off-setting to form clumps of over 300 mm. Almost stemless with thick rich green leaves. A very hardy, vigorous grower, ideal for temperate garden situations.

Propagate by offsets or dividing large clumps.



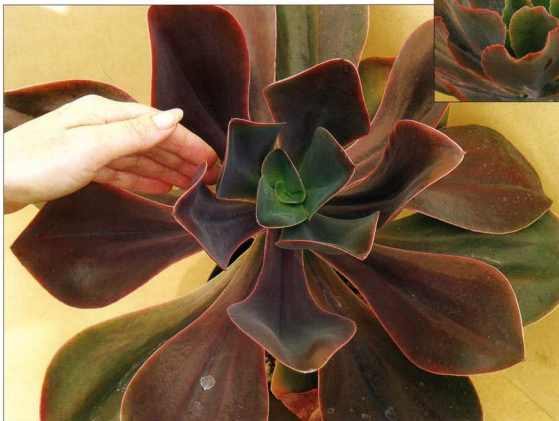
'Japanese Purple'

Of unknown origin. Grows to about 350 mm, then elongates on bare stems with age. Leaves sometimes slightly frilly. Dehead, callus and replant every two or three years for best results. This plant is most common in New Zealand. Most plants similar to *E. 'Orpet's Chocolate'*, however it appears that several different plants go under this name.

Propagate from occasional offsets and by deheading, which forces more offsets to develop.



(GG)



(PW)

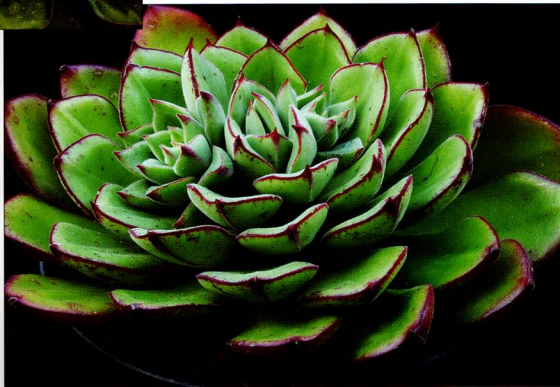
'Joan Daniel'

Of unknown origin. Parents are *E. ciliata* x *E. nodulosa*. Rosettes to about 80 mm, elongating on bare stems, then branching with age to form a loose shrub of about 250 mm or more in height. Leaf markings are strongly defined when grown in bright light. Propagate from stem cuttings.

Below: An example of a plant grown in too much shade.



(KFD)



(MC)

'Jocelyn's Joy'

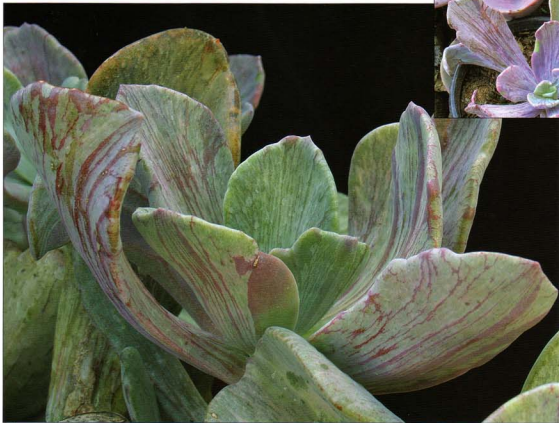
A recent variegated spontaneous mutation from a stem cutting of *E. gibbiflora* 'Violescens'. Named by Jocelyn Ainsworth (Australia). Solitary, growing to about 200 mm with a loose arrangement of several leaves, then elongating on bare stems. Strikingly streaked leaf markings. Dehead, callus and replant every two to three years for best results.

Propagate by deheading, which forces a few offsets to develop.

Below: *E. gibbiflora* 'Violescens' behind *E. 'Jocelyn's Joy'*.



(JA)



(JA)

(JA)



'Joy's Giant'

= *E. gibbiflora* 'Joy's Giant'

This plant originated in New Zealand from an unexpected seedling. Grows to 300 mm, then elongates on thick bare stems with age. Dehead, callus and replant every three or four years for best results. Stems can be up to 60 mm thick. Leaves are often variable in shape, but always a distinctive lavender colour.

Propagate by deheading, which forces a few offsets to develop or from flower stalk leaflets.



(PW)



(JT)

'Leisal'

A Charles Uhl hybrid seedling that was named by David Cumming in Australia. Sometimes misspelt as 'Liestal'. A small plant growing to 80 mm, then offsetting profusely to form larger clumps to 200 mm. This plant is more commonly seen in its cristate form. Mostly green, only turning yellowish during summer. Propagate by stem cuttings or leaves.



(PW)

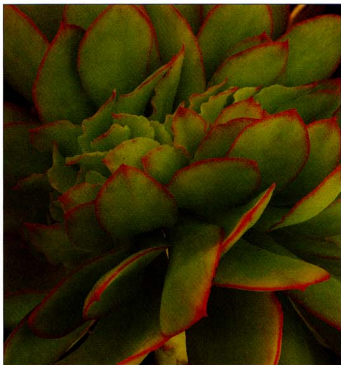


(PW)

'Lemon Twist'

A John Napton hybrid (?), probably of *E. pallida*. Mostly solitary to 160 mm then elongating on bare stems, sometimes branching. Leaves can be twisted and are always thin and very weak. Plant can have leaves turn upward to form a tulip shape when grown in bright light.

Propagate from stem cuttings or by deheading, which forces more stems to develop.



(JM)



(AT)

'Lilac Frost'

A newly named hybrid of *E. 'Etna'* by Renee O'Connell from Altman Plants, USA. Grows to 250 mm, later elongating on bare stems. Seasonal colour changes are very pronounced. Easily identified by its bumpy texture which almost covers the whole leaf surface.



Photo: Renee O'Connell



(KA)

'Lipstick'

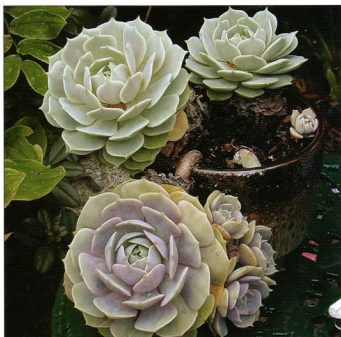
= *E. multicaulis* 'Lipstick'

Much larger growing than the common form of the species, with plants reaching 80-90 mm, then branching profusely to form sparse shrubs to 300 mm. Leaves can develop seasonally bright red margins. Flowers and flower stalks can also display dramatic seasonal colour. Prune back every three to four years for best results. An ideal temperate garden plant that also tolerates some frost.

Propagate from stem cuttings and flower stalk leaflets.



'Lola'



(DM)

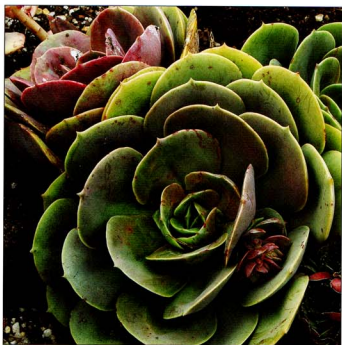
A Dick Wright hybrid (*E. lilacina* x *E. derenbergii*). Much like *E. 'Deresina'* (often spelt '*Derenseana*'). Mostly solitary, growing to about 120 mm, then slowly elongating on weak, narrow, bare stems. Occasionally offsetting. Needs deheading and replanting every two to three years for best results. Can be a delicate grower.

Propagate from leaves which detach easily. Deheading will also force a few offsets to develop.



'Lolita'

A 2004 hybrid by Michele Kapitany (Aust) of *E. Lola* x *E. Perle von Nurnberg*. A solitary grower to 130 mm, then offsetting with age to form loose clumps to about 300 mm. A vigorous grower with a pronounced colour change from grey to reddish. In summer it appears somewhat like a larger form of *E. Lola*. In winter it turns darker and appearing more like a form of *E. 'Perle von Nurnberg'*. Propagate from offsets and leaves.





(AS)

'Macabeana'

= *E. agavoides* 'Macabeana'

A small, fast grower to about 90 mm then offsetting profusely to form larger clumps of up to 400 mm. Can be almost lime green in winter, turning a pale yellow in summer. Leaves have long, narrow pointy tips.

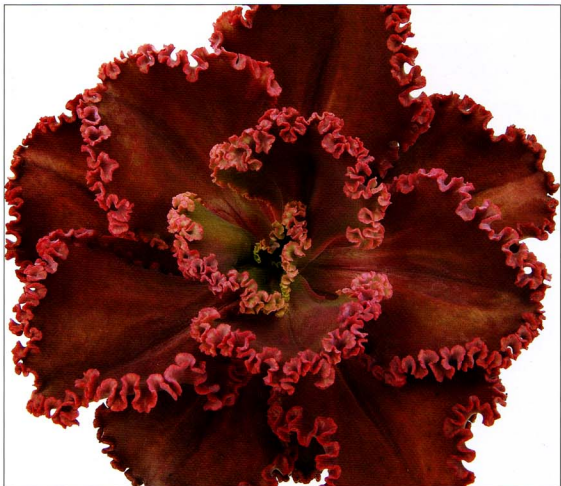
Propagate from offsets or by dividing large clumps.



'Mademoiselle'

A Dick Wright hybrid. A large, frilly plant growing to about 250 mm then elongating on bare stems with age. Dehead, callus and replant every three to four years for best results. It is very similar to several other hybrids and can be very hard to tell apart, though not as large growing and with frillier margins than many others.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.





'Mary Butterfield'

A hybrid by Harry Butterfield growing to about 200 mm then elongating on bare stems with age. Dehead, callus and replant every three to four years for best results. Can be a delicate grower in some climates. The leaves are barely frilly, sometimes appearing more wavy. Most having white leaf margins. Leaf surfaces appear to have a distinctive blue/white waxy coating.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.



(JA)

'Mauna Loa'

A Dick Wright hybrid that is solitary growing to 500mm, then elongating with age on tall bare stems. This is possibly one of the most spectacular of all echeverias hybrids. E. 'Mauna Loa' is constant in form under the same growing conditions but can vary dramatically under different environmental conditions, as seen on these two pages. The six plants pictured on this page have all been grown from cuttings taken at different times off the same parent plant. The three on the right were planted outdoors in full sun, while the three below were potted and grown in a greenhouse. This hardy grower is recommended for the temperate garden. Bumpy features do not develop in all climates and conditions.

Propagate from head cuts, which force offsets. Flower stalks may also be successful.



(BS)



(BS)

'Mauna Loa'



'Mexican Giant'

= *E. colorata* 'Mexican Giant'

A selected form collected from habitat because of its strikingly large, white leaves. Mostly solitary, growing to about 300 mm. Almost stemless, offsetting very slowly with age. Fleshy, thick leaves sometimes have a pinkish undertone on the older leaves (see below). Leaves easily marked as the white powder-like wax coating is readily removed. Fine show quality plants should therefore be kept out of reach and never watered from above.

Propagate by occasional offsets, leaves and seeds (from isolated and self-pollinated plants).



(HT)



(MC)

'Minas'

Of unknown origin. Mostly solitary plants growing to about 150 mm, later elongating on short narrow stems. Plants may decrease in size as they age, so they are best deheaded, callused and replanted every three to four years. Can be a delicate grower. Protection from very hot summer sun is recommended. Seasonal variation is very pronounced.

Propagate from flower leaflets, leaves or by deheading, which forces more off-sets to develop.



'Misty Cloud'

A spontaneous mutation of *E. 'Meridian'* with irregular and occasionally distorted leaves or bumpy leaf surfaces. A mostly solitary grower to 300 mm, then elongating on bare stems with age. Dehead, callus and replant every three or four years for best results. Most leaves have a fine frilly edge.

Propagate from occasional offsets or by deheading, which forces more offsets to develop.





'Morning Light'

A hybrid by Don Worth (*E. subrigida* x *E. shaviana*). Sister seedling to *E. 'Afterglow'*. This hybrid is a vigorous grower to about 200 mm, being almost stemless and mostly solitary. This plant is highly variable in frilliness and colour depending on the season and growing conditions. It benefits from deheading, callusing and replanting every three or four years.

Propagate from occasional offsets and by deheading or tip pruning, which forces more offsets to develop.



'Nubbles'

A Myron Kimmach hybrid. Solitary, growing to 250 mm, then elongating on bare stems. Easily identified by its unusual leaf colour. Bumps are not pronounced and may not develop at all, especially if plants are grown without stress. For best results, dehead, callus and replant every two to three years.

Propagate from flower stalk leaflets and by deheading, which forces a few offsets to develop.

Photo right: This plant is receiving enough sun for leaf colour, but may need additional light to develop bumps.



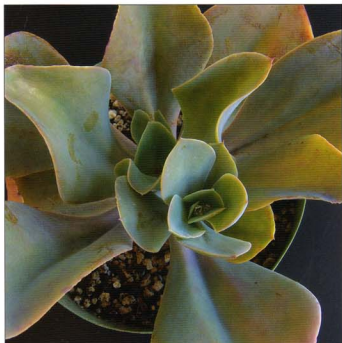
(GG)



'Orpet's Chocolate'

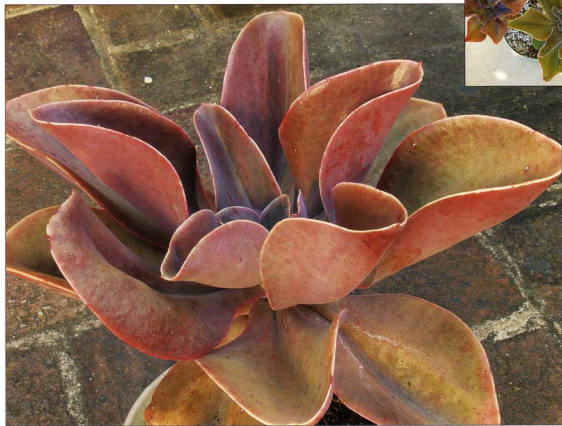
An Edward Orpet hybrid which is mostly solitary, growing to about 350 mm, then elongating on bare stems with age. Dehead, callus and replant every two or three years for best results. A strong, vigorous grower that looks best when given little or no extra fertiliser. New leaves often appear strongly folded upwards.

Propagate from occasional offsets and by deheading, which forces more offsets to develop.



(MH)

(MH)



(DM)

'Painted Beauty'

= *E. nodulosa* 'Painted Beauty'

Named by Myron Kimnach (ISI 1137). This selection of *E. nodulosa* found growing in habitat has more striking leaf markings than typical plants of the species (see page 8). Plants form a loose rosette of leaves to 110 mm, then elongate on thin bare stems. Branches loosely with age to form a small shrub about 160 mm in height.

Propagate from stem cuttings and seeds (from isolated, self-pollinated plants).



(GG)



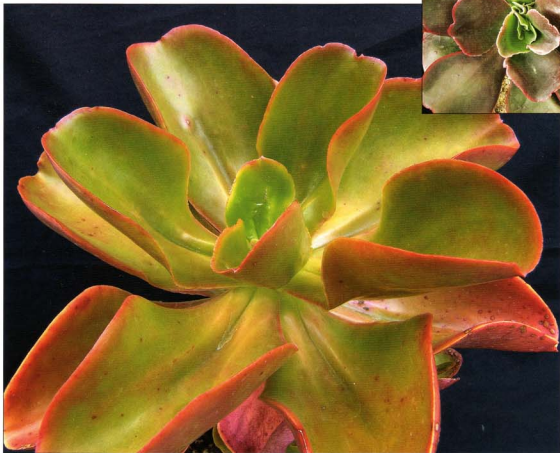
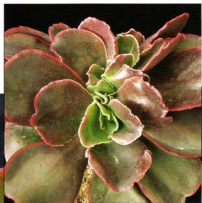
'Pappy's Rose'

A Dick Wright hybrid. This modest sized hybrid usually grows to no more than 150 mm and displays more compact growth than most frilly hybrids. Usually solitary, then elongating on bare stems with age. Dehead, callus and replant every three or four years for best results.

Propagate from occasional offsets and by deheading, which forces more offsets to develop.



(MH)



(MH)

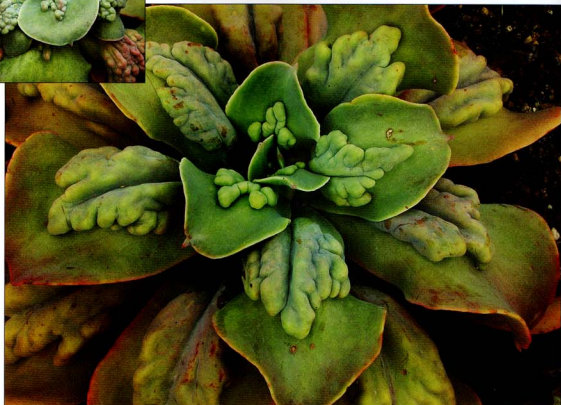
'Paul Bunyan'

A Dick Wright hybrid from 1960 (*E. gibbiflora* 'Carunculata' x *E.* 'Edna Spencer'). Solitary plants growing to 250 mm, soon developing bare exposed stems after which the plant's diameter often decreases. Leaves can reflex to form a ball-shaped rosette. Bumpy leaf surface, never having the regular division or valley in the central area like *E.* 'Embossed Gem'.

Propagate from head cuts and a few forced offsets.



(MC)





(JA)

'Perle von Nürnberg'

A German hybrid by R. Graessner of *E. gibbiflora* 'Metallica' x *E. potosina* (now *E. elegans*). A well known and widespread hybrid which grows to about 150 mm, then elongates on thin bare stems.

Mostly solitary, it benefits from being deheaded, callused and replanted every three to four years. Can be a slow and weaker grower than most other similar sized hybrids. Colour may not develop on plants grown in too much shade. Compare a shade grown plant (insert) to the garden grown plants below.

Propagate from occasional offsets or by deheading, which forces more offsets to develop.

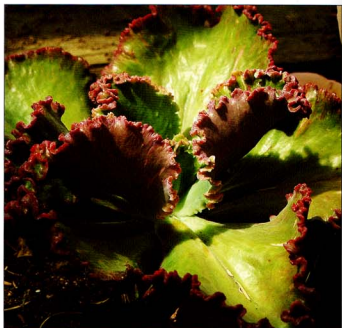


(BS)

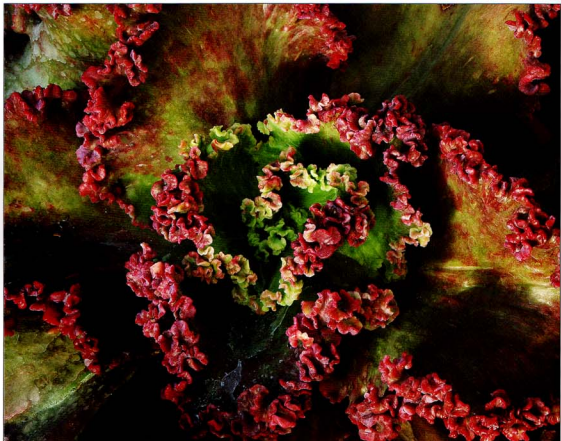
'Petticoat'

A Dick Wright hybrid. A large, solitary grower to 300 mm or more, then elongating on bare stems. This is one of the frilliest hybrids, with a thicker than normal frilly edging which appears like a double frill. Its relatively few leaves are often flecked, streaked or blotchy, with only the frilled margins a pronounced reddish colour.

Propagate by deheading, which forces a few offsets.



(BS)



(JA)

'Phyllis Collis'

A hybrid by R. Collis (UK) of *E. affinis* x *E. cante*. A mostly solitary plant growing to about 130 mm. Shows very pronounced seasonal colour changes.

Propagate from leaves, occasional offsets and flower stalk leaflets.



(MC)



(BS)

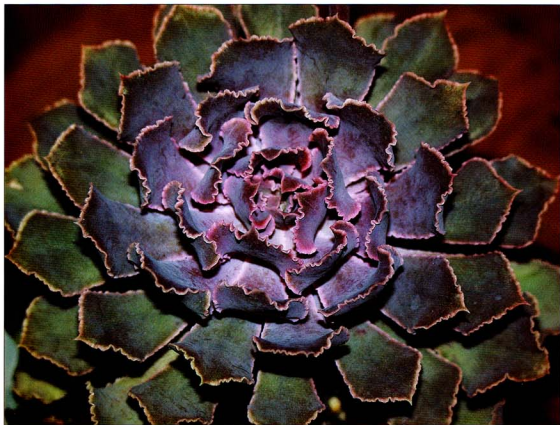
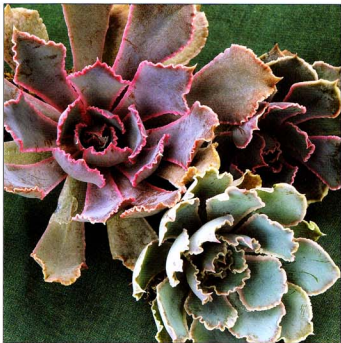
'Pink Frills'

= *E. shaviana* 'Pink Frills'

A selected form of the species which has seasonally striking pink leaves. Grows to about 140 mm, occasionally offsetting to form loose clumps of several smaller rosettes. A delicate grower that always prefers some shade, especially in summer. Has a very graceful flower stalk. The pink colour in the leaves is only evident during summer. Otherwise, this plant is indistinguishable from the typical bluish-coloured *E. shaviana*.

Propagate from flower stalk leaflets, occasional offsets and leaves.

Photo right: *E.* 'Pink Frills' compared to more typical *E. shaviana*.



'Pinky'

A Myron Kimmach hybrid from 1961 (*E. shaviana* x *E. cante*), ISI 697. Mostly solitary, growing to 200 mm, then elongating on short stems with age. Colour varies from bluish to all pink, but mostly in varying degrees of both. Very similar to *E.* 'Morning Light'. Can develop seasonally frilly outer leaf margins.

Propagate from occasional offsets or from flower stalk leaflets.

Photo left: *E.* 'Pinky' (right) compared to *E.* 'Morning Light'.



(MH)

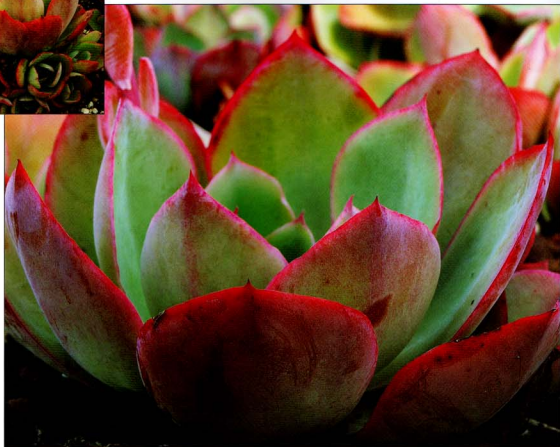


(PW)

'Powder Blue'

A hybrid of unknown origin with either *E. subrigida* or *E. cante* being a possible parent. Often incorrectly labeled as *E. 'White Rose'*. Fast growing to 300 mm then decreasing slightly in size while at the same time offsetting profusely to form loose clumps of up to 400 mm. The very thin, soft, flexible bluish leaves have a waxy white coating. Ideal for the temperate garden, where it looks best. For best results give little or no fertiliser.

Propagate from offsets or by dividing large clumps.



'Princess Lace'

A Dick Wright hybrid which was named by Lila Lillie. A solitary, large grower to 400 mm, then elongating on bare stems with age. A strong and vigorous grower. Dehead, callus and replant every three or four years for best results. Leaves always very frilly.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.



(PW)

(PW)



(MH)

'Pulvicox'

Of unknown origin (*E. pulvinata* x *E. coccinea*). Grows to about 100 mm in an open rosette of a few leaves, then elongates on bare, almost woody, stems. Branches with age to form loose, open shrubs to 400 mm in height. The green leaves always have a velvety look due to a covering of almost microscopic hairs. Large, bright red flowers are a highlight.

Propagate from stem cuttings and leaves.



(MC)



(MC)

'Raindrops'

A Dick Wright hybrid. This smallest of all the bumpy cultivars is solitary and only reaches 150 mm. The mostly regular bumps appear similar to a water droplet, hence the name. May require some light shade for best development of features. Young plants (see below) are slow to develop bumpy leaves.

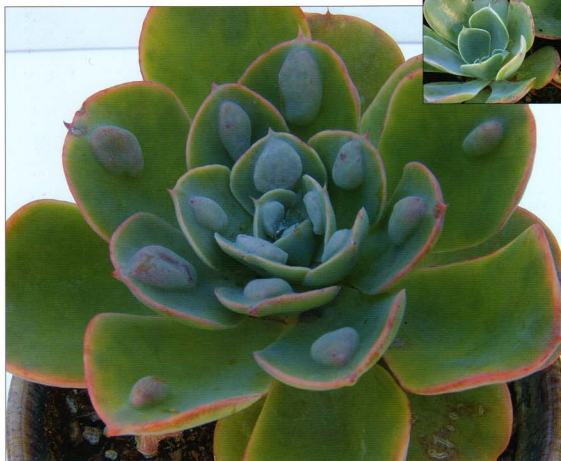
Propagate from head cuts, which force a few offsets.



(DM)



(DM)

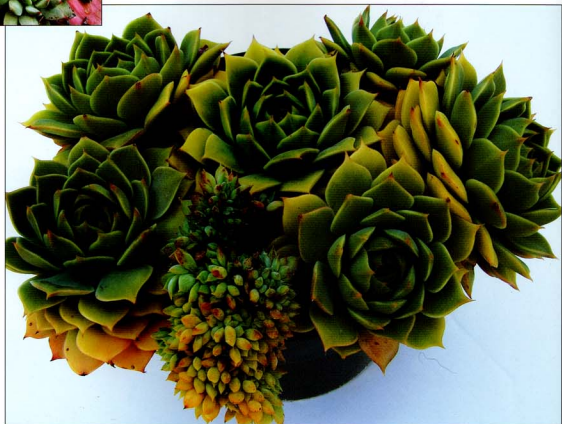
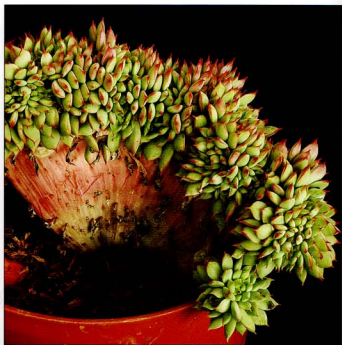


(MH)

'Ramillete'

A Dick Wright hybrid. The crested form is difficult to identify as it looks similar to a number of unnamed crests. Rosettes grow to 60 mm, then freely offset to produce larger clumps. Little seasonal colour change. *E.* 'Ramillete' is most often grown in its crested form.

Propagate the crested form from stem cuttings, the normal form from offsets or leaves.





(BS)

'Red Baron'

A spontaneous mutation (2002) of a stem cutting of *E. 'Zorro'*. Named by Bev Spiller of Australia. Appears to be a solitary, large grower to about 300 mm, after which it will most likely elongate on bare stems with age. Leaves appear less frilly than those of its parent *E. 'Zorro'* (pictured below, behind two pots of *E. 'Red Baron'*).

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.

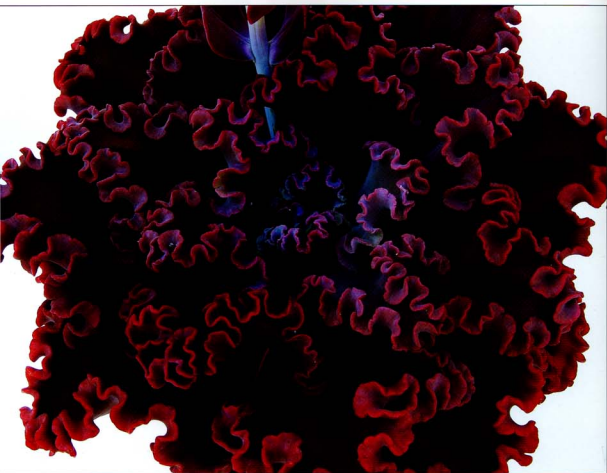


(BS)

'Red Trump'

A Dick Wright hybrid. A large, frilly solitary grower to 250 mm, then elongating on bare stems with age. Dehead, callus and replant every three to four years for best results. Always reddish in colour, but dramatically more so seasonally.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.



'Ripples'



(DW)

A Harry Butterfield hybrid. A large, frilly, solitary grower to 250 mm, then elongating on bare stems with age. Similar to *E.* 'County Fair' but the tighter growing rosette is larger and has more leaves. Dehead, callus and replant every three to four years for best results. Reddish leaf edges fade in summer and when grown without enough light.

Propagate by deheading, which forces a few offsets to develop and from flower stalk leaflets.

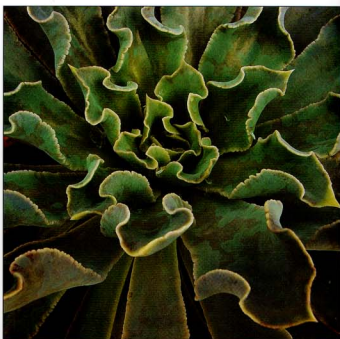


(MH)

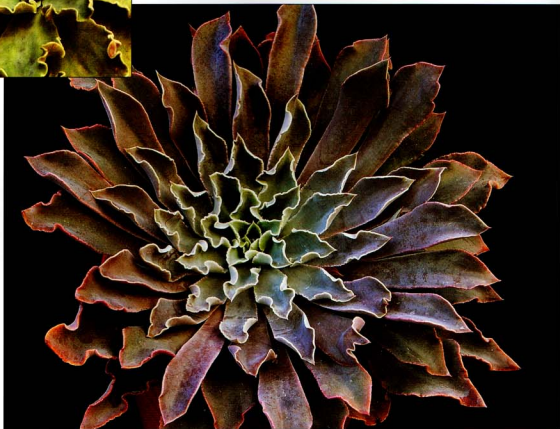
'Rippling Waters'

Of unknown origin and often mis-labeled as *E. 'Rococo'*. A mostly solitary plant growing to about 150 mm, then elongating with age on very short, bare stems. Can be a difficult grower as it needs protection from strong summer sun. This plant looks best grown with less fertiliser than most echeverias.

Propagate from flower stalk leaflets and occasional offsets.



(184)



'Rosa Lee'

A Dick Wright hybrid that grows as a mostly solitary plant to 300 mm or more, then elongates with age on bare stems. A very hardy and vigorous grower that may need deheading, callusing and replanting every three or four years for best results.

Propagate from occasional offsets and by deheading, which forces more offsets to develop.



(BS)



(BS)



(BS)

'Ruby'

= *E. pulvinata* 'Ruby'

This is a selected form of the species which has very striking seasonal reddish colour. Leaves are densely covered with microscopic hairs that give the leaves a felt-like feel. Grows to 70 mm, then branches to form sparse shrubs to about 250 mm in height and width. Outdoor exposure to cold and light frost brings out the finest colours. The larger than normal flowers always develop during the cooler months.

Propagate from stem cuttings and flower stalk leaflets.



'Ruby Lips'

Of unknown origin. Mostly solitary, growing to about 250 mm, then elongating with age on relatively short stems.

Dehead, callus and replant every three to four years for best results. A hardy grower with mostly green leaves, but always with varying degrees of red, which is most pronounced on leaf margins. Leaves are always very wide and mostly upturned.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.



(JA)



(GG)

'Sadrinak'

A Charles Uhl hybrid. Sometimes mis-spelt as 'Sandrank'. A large solitary grower to 250 mm, then elongating on bare stems with age. Occasionally lightly frilly on the outer leaf margins. For best results, dehead, callus and replant every three to four years.

Propagate by deheading, which forces a few offsets to develop, and flower stalk leaflets.



(GG)



(PW)



(PW)

'Scarletta'



(NB)

A Glen Collins hybrid. A large growing plant reaching 400 mm, later elongating on bare stems. Best deheaded every two or three years. Characterised by dark red, frilly leaves. Pronounced seasonal colour changes.

Propagate by deheading, which forces offsets.



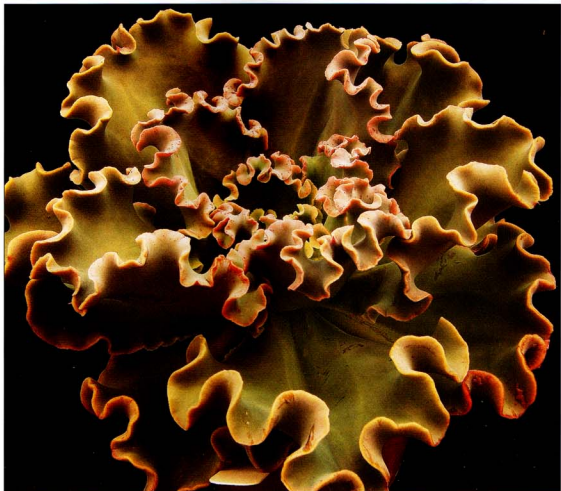
(NB)

'Sea Dragon'

A new hybrid by Renee O'Connell from Altman Plants, USA. The unusual pale colour and large, frilly leaves should make this cultivar very popular.



Photo: Renee O'Connell

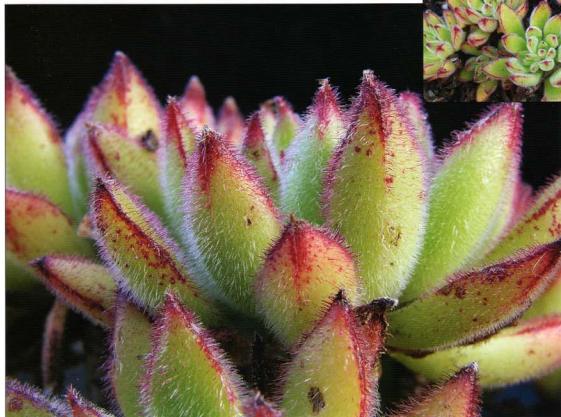


'Set-Oliver'

A Victor Reiter hybrid from 1932 (*E. harmsii* x *E. setosa*). Rosettes of up to 70 mm, then elongating on bare woody stems. Branches freely and quickly to produce short, compact shrubs to about 150 mm in height and width. Leaves always thick and hairy. It is very cold tolerant and hardy, making it ideal for many types of temperate garden situations. Relatively large and abundant flowers of orange and yellow. Propagate from stem cuttings.



(MC)



(MC)

'Shamrock'

Of unknown origin (*E. purpureum* hybrid). A small, compact grower to about 80 mm, then slowly offsetting with age to form dense clumps of up to 120 mm. Can be a delicate grower. A slow growing plant that should not be hurried along by overwatering and feeding, as this results in the roots dying off.

Propagate from offsets or by dividing dense clumps. Leaves are also possible, but very slow.



(MC)



(MC)

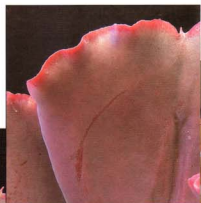
'Silveron Red'

A Dick Wright hybrid. Large growing to about 250 mm, then elongating with age on bare stems. Dehead, callus and replant every three to four years for best results. Leaves have a silvery sheen which rubs off easily.

Propagate by deheading, which forces a few offsets to develop, and from flower stalk leaflets.



(DW)



(DW)

'Spring Showers'

Of unknown origin. May be a garden hybrid of *E. secunda*. Sometimes called *E. 'Spring Song'* and similar to a number of unknown hybrids. Rosettes grow quickly to 200 mm then freely offsetting to form clumps to over 500 mm. An excellent garden plant in temperate climates. Propagate from offsets and by dividing large clumps.



'Spruce-Oliver'

A Victor Reiter hybrid. Rosettes of up to 80 mm, then elongating on bare woody stems. Branching freely and quickly to produce short, open shrubs to about 200 mm in height. Leaves have a hairy margin. The reddish colour is most prominent on the underside of the leaves. It is very cold tolerant and hardy, making it ideal for many types of temperate garden situations. Propagate by stem cuttings or leaves.



(MC)

(MC)



(MC)

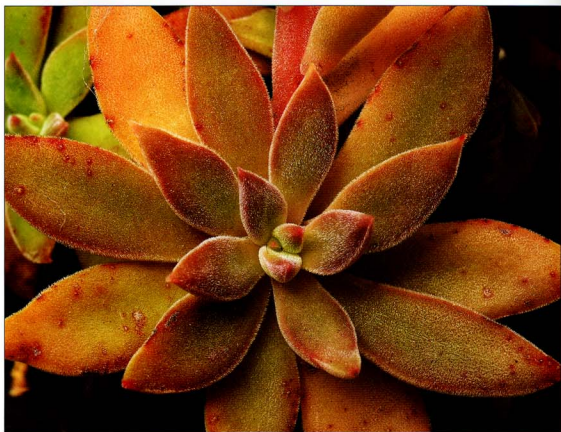
'Sugared'

A C. Uhl hybrid named by Dick Wright (1972). Sometimes misspelt 'Sugar'd'. A small hybrid growing to 100 mm then branching profusely to form shrubs of up to 300 mm in height and width. The long, narrow leaves have microscopic hairs which in certain situations can make them appear sugar-coated.

Propagate from stem cuttings and leaves.



(MC)



(MC)

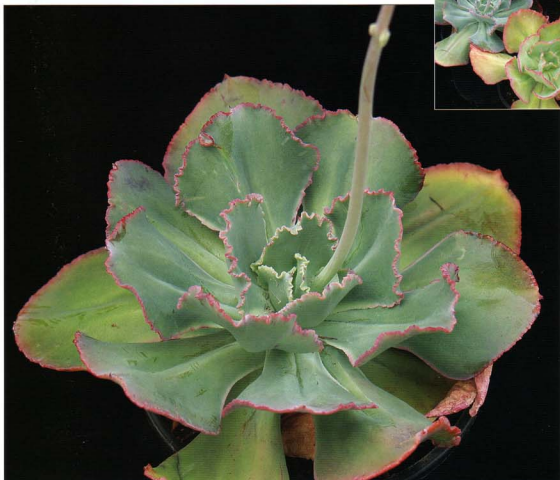
'Sundancer'

A Dick Wright hybrid. Growing to about 250 mm, then elongating with age on bare stems. Dehead, callus and replant every three to four years for best results. Plants have a bluer appearance compared to similar hybrids (below).

Propagate by deheading, which forces a few offshoots to develop, and from flower stalk leaflets.



(MC)



(MC)

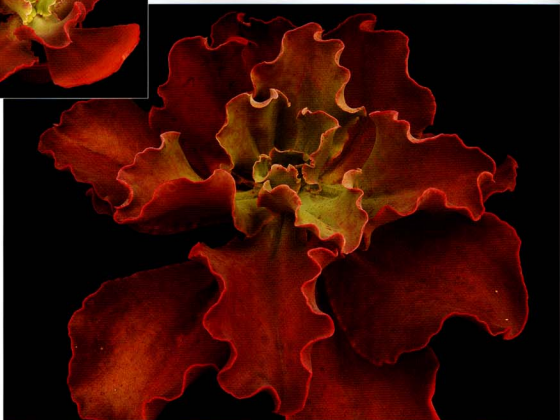
(MC)



'Thelma O'Reilly'

A Harry Butterfield hybrid. Most often labeled as *E.* 'Thelma', which in Australia has been further corrupted to *E.* 'Huelma'. Grows to 350 mm, stems elongating and becoming bare with age. Plants have relatively few leaves, especially compared with newer hybrids. Needs to be deheaded, callused and replanted every two or three years.

Propagate from the occasional offset or by deheading, which forces more offsets.



'Tippy'

A Dick Wright hybrid of *E. cuspidata* (?). Also sometimes called *E. 'Sunburst'*. A small but fast grower to 100 mm, then offsetting profusely to form larger dense clumps of up to 250 mm. Always has pointy leaf tips. Almost stemless with notably thick leaves if given ideal conditions. This plant seasonally resembles many similar echeverias.

Propagate from offsets or by dividing large clumps.

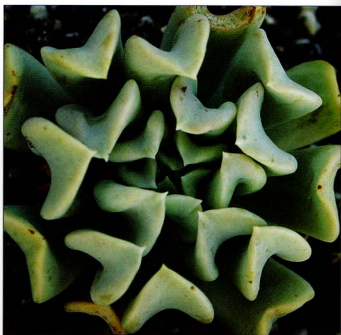


'Topsy Turvy'

= *E. runyonii* 'Topsy Turvy'

Named by Myron Kimnach. Spontaneous mutation of *E. runyonii* that grows with distorted leaves in a remarkably regular fashion. Reversions and irregularities in growth are very rare. Mostly solitary, growing to about 180 mm, almost stemless, occasionally offsetting with age to form loose clumps. Plants look their best if grown without fertiliser. The large orange flowers are produced in profusion during summer.

Propagate from occasional offsets and leaves.



(DM)



(MH)

'Truffles'

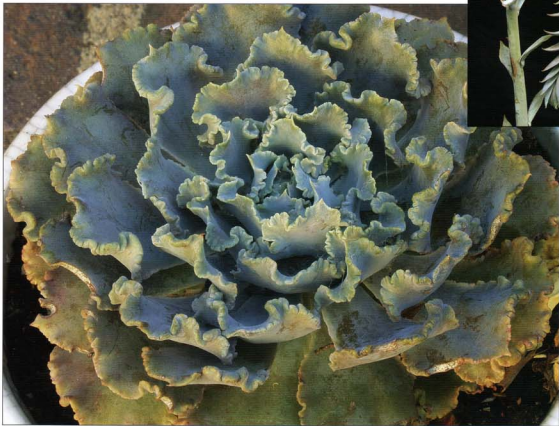
= *E. shaviana* 'Truffles'

Of unknown origin. A selected form of *E. shaviana* named by Charles Glass for its extra-frilly, very thick leaves. Almost stemless and mostly solitary, growing to about 150 mm. Hardier than *E. shaviana*, which can be difficult to maintain.

Propagate from occasional offsets, leaves and flower stalk leaflets.



(DM)



(DM)

'Van Keppel 68937'

A van Keppel hybrid which appears not to have been given any other widely accepted cultivar name. An *E. agavoides* x *E. elegans* hybrid (see middle photo, showing parents on either side). Relatively slow growing to 80 mm, then offsets to form larger clumps.

Propagate from cuttings, leaves or by dividing up the compact clumps.



(MC)



(BS)



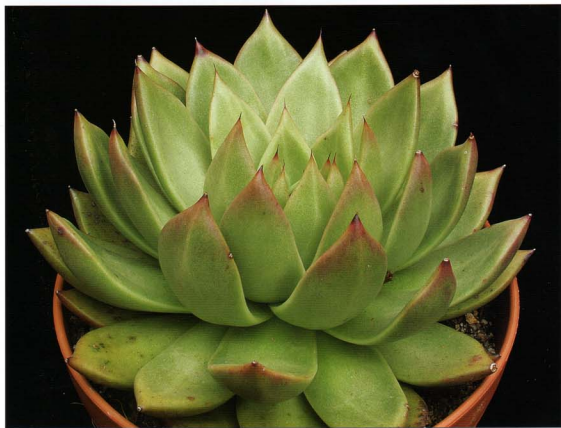
(BS)

'Vashon'



Of unknown origin. Assumed to be a hybrid or a selected form of *E. agavoides* (a species). Mostly solitary, growing to about 300 mm with occasional offsets. This robust, hardy and larger growing cultivar is ideal for temperate gardens. Leaf colour is mostly a distinctive pale green.

Propagate from occasional offsets, or leaves, which are very slow to establish.



'Violescens'

E. gibbiflora 'Violescens'

A selected form of the species. A often branching plant with a brightly coloured open rosette of a few leaves. Plants grow to about 220 mm, then quickly elongate on bare stems. The long leaves have a distinctive rounded end and are mostly a rich lavender or purple colour. For best results this plant needs deheading, callusing and replanting every two to three years.

Propagate by deheading, which forces a few offsets to develop. Leaves are also possible.

Photo below: This crested plant has been grown in too much shade and has not developed its typical colour.



(JF)



(KC)

'Violet Queen'



An Edward Orpet hybrid. One of the parents is thought to be *E. elegans*.

E. 'Violet Queen' is incorrectly called *E. subsessilis* in New Zealand. Plants grow to 110 mm, then offsets profusely to form large clumps of twenty or more rosettes reaching over 300 mm in diameter. Excellent temperate garden plant and ideal for garden borders. Exposure to cool temperatures and light frosts brings out the best colours.

Propagate from offsets or by dividing large clumps.



'Virginia Lee'

A large growing plant reaching 400 mm, later elongating on bare lower stems. Best deheaded every two or three years. Characterised by frilly leaf margins and regular, long leaf bumps. Pronounced seasonal colour changes.

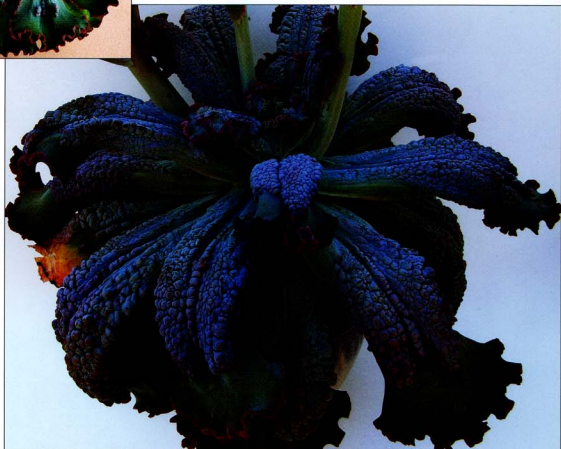
Propagate by deheading, which forces offsets to develop.



(MBH)



(MBH)



(MBH)

'Waladay'



(PW)

Of unknown origin. A mostly solitary, large growing plant to 350 mm, then elongating on tall bare stems with age. Dehead, callus and replant every two or three years for best results. A loosely arranged rosette with long, mostly purple leaves. Leaves also notably upturned on the sides and with a rather irregular frilly aspect.

Propagate from occasional offsets and by deheading, which forces more offsets to develop.



(PW)

'Worfield Wonder'

Of unknown origin. Similar to, or the same as, *E. 'Derosa'*. Also known as *E. 'Hertzblut'*. It grows to about 100 mm, then offsets profusely to form larger clumps up to 300 mm in diameter. Leaves grown in bright light always have red tips. Flowers profusely in spring.

Propagate from offsets or by dividing large clumps.



(PW)



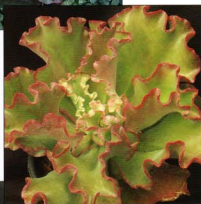
(DM)

'Zorro'



A seedling from the Dick Wright nursery which was named by Bev Spiller (Aust). A larger than normal frilly hybrid to 400 mm, elongating on bare stems with age. For best results needs to be deheaded, callused and replanted every three or four years. Leaves at their best can be a very dark burgundy, but are sometimes green or grey/brown in colour. Frilly margins seasonally red or orange.

Propagate from flower stalk leaflets and by deheading, which forces a few offsets to develop.



(JF)

Part 3

Unnamed hybrids,
recently developed
hybrids and variegates

E. albicans x *E. lindsayana*

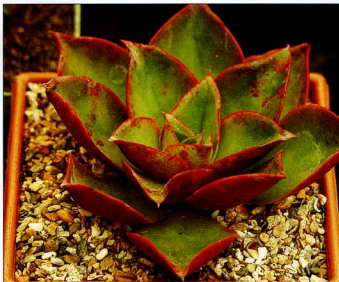
A compact, freely offsetting hybrid growing to 80 mm. Leaf-tip markings need adequate light to reach their full potential.



(BS)

E. canaliculata x *E. longissima*

A mostly solitary hybrid growing to 120 mm. A delicate grower that is very sensitive to mealybug damage and sunburn.



E. derenbergii hybrid

This hybrid can grow to about 80 mm across. Most *E. derenbergii* hybrids flower easily in small pots of 70 mm or less. Flowers are also large on short stalks





E. derenbergii x
E. purpusorum

An easy and vigorous grower to 90 mm which offsets freely, eventually forming clumps over 160 mm.



E. diffractens x
E. carnicolor

Mostly solitary and stemless to 120 mm. Leaves are brittle and detach easily.



E. diffractens x
E. gibbiflora

Unlike the other *E. diffractens* hybrids, this cross can grow to 250 mm and shows the wavy leaf characteristics of its *E. gibbiflora* parent.

E. diffractens x
E. 'Phyllis Collis'

Mostly solitary and stemless to 120 mm. A delicate plant that suffers severely from pests and diseases and is often difficult to maintain in a healthy state.



(JM)

E. elegans x
E. 'Mexican Giant'

This seedling is yet to be propagated. Note how it shows many of the leaf characteristics of its large parent *E. 'Mexican Giant'*, shown partly to the right.



E. lutea hybrid

Lilla Lillie of California circulated this form from her nursery. For lack of a name, it became known in Australia as 'Lila's Lutea'. The plant is believed to be a hybrid. This plant differs from the species by having more abundant and twisted leaves.



(JA)



E. minima x
E. secunda

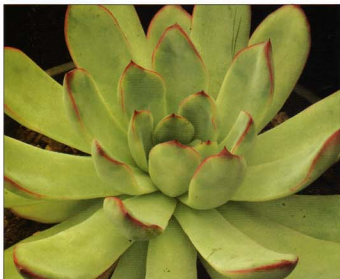
This hybrid is mostly solitary and almost stemless, growing to about 100 mm. The neatly arranged leaves make this plant very attractive.



(MC)

E. purpusorum
hybrid

A short, thick leaved echeveria with striking leaf markings which grows to 100 mm. It remains stemless but slowly clumps with age.



E. pulidonis x
E. lindsayana

Stemless plant to 110 mm then freely offsetting to form clumps of 200 mm or more.

New hybrids by Dick Wright

This seedling is yet to be named...



(DW)

The name *E. 'Kilauea'*, is in keeping with the volcano theme used for several bumpy-leaved hybrids.



(DW)

E. 'Pagoda' is one of the smaller hybrids, only reaching 100 mm in diameter.



(DW)

New hybrids by Renee O'Connell



(KA)

This tray of one-year-old seedlings will be monitored for plants that develop unusual features. At this age, they still do not show the frills and/or bumps of more advanced plants.



(KA)

A two year old seedling which has an unusual colour as well as attractive frills. Another year or two should show its true potential as a possible new, named cultivar.



(KA)

A two-year-old seedling with unusual colour.

Variegates

E. agavoides

A plant which apparently arose as a spontaneous mutation in the collection of Brian Worthley of Adelaide, Australia.



(BW)

E. 'Blue Jay'

Photographed at Altman Specialty Plants, USA.



(KA)

E. elegans f. *albicans*

Known only from New Zealand.



(PW)



(KA)

E. 'Perle von Nurnberg'

This variegata starts out with normal coloured leaves but loses its pigmentation as the leaves age.



(KA)

Photo by Renee O'Connell

E. subsessilis



(KA)

seedling of *E. 'Tie Dye'*

This seedling is much more variegated than the parent.

Recent history of echeveria hybridisation

After the initial European interest for echeverias in the 1870s, echeverias became increasingly popular in the late 1940s onwards, especially in California. Until then, collections were mostly made up of the European hybrids. With the advent of better vehicles and more leisure time, California collectors ventured south into Mexico and collected new species to use in hybridising. Many of their early hybrids had poor form, this being considered as having few, erect leaves which are far apart on the stem, giving rise to a lanky looking plant. Leaves which were obviously folded and leaves which were much longer than they were wide were also considered poor, being 'wild looking' and therefore not desirable as hybrid features. Green plants were shunned, bright blues, reds and other atypical colours were favored. This explains why there are very few green frilly hybrids, they were weeded out when they appeared because they were considered too ordinary looking.

In the 1950s, Prof. Harry Butterfield, head of the horticulture department of the University of California at Berkeley, created a number of hybrids which are still popular today. Some of Prof. Butterfield's early hybrids showed a tendency for the rosette to elongate during flowering, a trait that is also common among parents species. Some of Prof. Butterfield's hybrids which are still popular today include *E. 'Curly Locks'*, *E. 'Embossed Gem'* and *E. 'Mary Butterfield'*.

A contemporary of Prof. Butterfield was Frank Reinelt of Capitola, California. He used inbreeding (only crossing the same line of hybrids and their offspring) which tends to restrict the characteristics which appear. He appears to have originally bred for a blue colour and most of the Reinelt *E. gibbiflora* hybrids are blueish as a result of continued inbreeding. His best known hybrids are *E. 'Blue Curls'*, *E. 'Blue Waves'* (apparently sister seedlings) and *E. 'Black Prince'*. Other Californians who hybridised and named their plants were Don Skinner, who produced *E. 'Blue Boy'* and *E. 'Topper'*, Edward Orpet who bred *E. 'Violet Queen'* and *E. 'Orpet's Chocolate'*, and Don Worth, who hybridised *E. 'Afterglow'*, *E. 'Morning Star'* and *E. 'Morning Light'*.

Europeans were not idle with echeverias during the years after the 1870s boom. In Europe, the smaller growing windowsill sized hybrids were favored over the large frilly *E. gibbiflora* types. W. Von Roeder (Germany), and van Keppel (Holland) were the best known European hybridisers of the time.

The best known and most prolific hybridiser was Dick Wright. Born in 1928, Dick started hybridising echeverias around 1958. Dick became interested in succulents via his father, Clarence, who was a founder of the Long Beach Cactus and Succulent Society in California. Prof. Butterfield, who by then had produced a number of popular hybrids, pointed out that many of the existing hybrids had poor form and that Dick should concentrate his efforts in this area. Dick produced and sold many thousands of echeveria hybrids. In the 1950s. He named only fifty or so of his hybrids before a tragic fire and loss of almost all of his records and plants in 1985. Dick produced most of his *E. gibbiflora* hybrids via out-crossing, where pollen is taken from other hybrids from different parent stock instead of just in-crossing, where the best offspring are cross-pollinated. This proved successful because it brought in genes responsible for new colours and forms. As a nurseryman, Dick Wright needed to sell plants so those echeveria seedlings not chosen by him as being worthy of propagating and naming were sold cheaply by the thousands in seedling trays to other nurseries who potted them up and sold them, usually unnamed, on to the public. Some nurseries, particularly those engaging in mail order and selling to collectors, bought seedling trays, selected what they considered the best and propagated these, usually giving them their own names. Lila Lillie in San Rafael bred some echeverias but also purchased Dick Wright seedlings and propagated and named some of the best of these. Some, such as *E. 'Blondie'*, were in fact Dick Wright rejects, became as well known as his named hybrids.

Between 1965 and 1985 Dr. Charles Uhl of Cornell University (USA) made many hundreds of hybrids among species of *Echeveria* and its relatives. He found that most Mexican *Crassulaceae* hybridise readily in cultivation. Pressed specimens of the hybrids and their parents and photos of his hybrids and the parents used are in the herbarium at Cornell University. The species have many different chromosome numbers, and his primary objective was to learn more about their relationships by studying how the parental chromosomes behave in these hybrids. Some hybrids were attractive or unusual, but he had no particular interest in their prospects for horticulture. He gave surplus plants to anyone interested, and in this way some of them entered the horticultural trade and received names as cultivars.

Most of the parental species are diploid, and they pass on a single outfit of chromosomes and genes to their progeny. Their hybrids are intermediate in appearance between their parents, but most of them are sterile. However, Uhl found that some species are tetraploids, with four sets of chromosomes, and hybrids between them receive two sets of chromosomes from each parent. These hybrids also appear intermediate between their parents, but most of them are fertile and can produce second-generation hybrids. Still, other *echeverias* are higher polyploids, with from six to as many as 12 or even 14 sets of chromosomes, and they contribute half of them to their progeny. Hybrids receive only one set of chromosomes from a diploid parent, and so they receive 6/7 or 7/8 of their genetic information from a high polyploid (12-ploid or 14-ploid) parent. Whichever way the cross is made, such hybrids closely resemble the parent that has the greater number of chromosomes. He found that many hybrids among high polyploids are fertile and can produce second-generation hybrids, even though the grandparents may have come from three or four different genera. These offspring of intergeneric history may offer opportunities for future breeding of new cultivars.

Currently, the most prominent hybridiser of *echeverias* is Renee O'Connell who works on behalf of Altman Specialty Plants in California. For as long as she can remember, she has been in awe of the beauty and complexity of nature. When first introduced to the paintings of Vincent van Gogh, Renee was struck by the emotional impact of the vivid colors. She dabbled with painting and photography for a while, seeking to express intense color contrasts and the effects of backlight. Already an avid collector of cactus and succulents, her interests began to be drawn more by *echeverias*, which are themselves like an artist's palette. This was the impetus that ultimately lead to the pursuit of hybridisation as a means by which to enhance the colors and fractal shapes of *echeverias*. With the help of Ken and Deena Altman of Altman Plants, this became possible. Their love for plants, commitment to excellence, and passion to introduce leading-edge succulents to the world has provided an ambiance very conducive to creation. Much of the work that Renee has done would not have been possible were it not for the hybrids created by Dick Wright, and subsequently by her mother, Denise Manley, who further developed some of the bloodlines initiated by Dick.

Echeveria cultivar and hybrid index

This list contains the names of most cultivated echeveria hybrids as well as some intergeneric hybrids which can be easily mistaken for echeverias. Cultivar names are assumed to be hybrids unless stated otherwise. Many of the plant names on this list may no longer be in cultivation. Names which begin in lower case and are in italics refer to species, not cultivars.

Abbreviations have been used to simplify the data. The first entry after the name refers to the origin of the cultivar (see page 38 for more information on understanding cultivars and hybrids). Cultivar names followed by (nat) specify those plants which are naturally occurring forms of a species. If a plant's origins are unclear or unknown, these are designated by (un). If (sm) appears the plant has arisen as a result of a spontaneous mutation. Spontaneous mutations include sports, variegates, monstrous and crested plants. Crested and variegated plants are usually not given new cultivar names and are not listed.

Where known, the hybrid parent plants (written in italics) are listed. The first parent name refers to the seed parent, the latter to the pollen parent.

Cultivars of intergeneric (a combination of two different genera) origins which closely resemble echeverias are identified but not covered further. The same applies to species which have been incorrectly identified as cultivars.

Most of the cultivars originated in the USA. Other countries are listed if known. Countries abbreviated are Australia (Aust), New Zealand (NZ) and the United Kingdom (UK). Some cultivar names arise from being used by general nurseries. Such names are referred to as marketing names and should be considered as having less validity than cultivar names which have been formally published.

The letters 'IS' followed by a number refer to plant releases by International Succulent Introductions based in California (see page 40).

A few words describing the plant may be given; this is based on mature plants grown in bright light. With reference to sizes: large refers to those with rosettes over 200 mm in diameter, small with rosettes less than 125 mm.

The page reference refers to where additional information and in most cases photographs are to be found.

() = Person who hybridised the plant.

(nat) = A natural occurring form of (a species).

(sm) = Spontaneous mutation (sport).

(un) = Unknown origins.

Abbreviated countries listed:

UK = United Kingdom

Aust = Australia

NZ = New Zealand

'Aciphylla' (M. Deleuil, France, 1870s) *E. agavoides* x *E. globosa*

'Afterglow' (D. Worth) *E. subrigida* x *shaviana* Sister seedling to 'Morning Star' & 'Morning Light' large, pink/blue p52

agavoides x *E. elegans* (un) No cultivar name.

agavoides x *E. lindsayana* (un) No cultivar name.

agavoides x *E. purpusorum* (un) No cultivar name.

'Alba' (un) Similar to 'E. Van Breen'. May also be a misspelling of *E. albicans* (a species).

albicans x *lindsayana* (un) = *E. turgida*? No cultivar name.

'Alfred Graf' (F. Reinelt)

'Alice' (un) Marketing name.

'Allariz' (C. Uhl) Named by D.Cumming, Aust.

'Alma Wilson' (un) Also called 'Lucita' in Australia.

'Alta May' (D. Wright)

'Amethorum' (C. Uhl) Should be *xGraptoveria* 'Amethorum' (intergeneric hybrid).

amoena x *E. setosa* (un) No cultivar name.

'Apricot Glow' (un)

'Aqua Rose' (un) Similar to 'E. Brilliant'. Name used only in NZ.

'Aquarius' (L. Lillie)

'Arlie Wright' (D. Wright)

'Astronaut' (un)

'Atrocarnicolor' (un)

'Atropurpurea' (nat) Should be *E. atropurpurea* (a species).

'Atrosanguinea' (un) Old hybrid from the 1950s.

'Attraction' (un)

'Aurora' (D. Wright) Similar to 'E. Decora'.

'Australasian Delight' (un) Looks like *E. 'Delight'*.

'Autumnalis' (un)

small, pearly white

small, pale, transparent green leaves

small, pale green

small

brown/black, small

large

small, bronzy

frilly, large

frilly, large

frilly

large, reddish brown

large

frilly, blue, clumping

frilly, large

frilly

large, bumpy

variegated pink and white

frilly, large

Babylon' (un)	frilly, large	
'Baby Blue' (sm) Sport of <i>E. peacockii</i> (a species). Named by J. Ainsworth, Aust.		
'Ballard' (nat) Should be <i>E. racemosa</i> .	dark, brownish leaves	
'Ballerina' (H. McCabe) ISI 454. Named by D. Skinner.	frilly, large,	p57
'Bambino' (J. Mueller) Seedling of <i>E. colorata</i> 'Mexican Giant'	large, whitish blue	p58
'Barbillion' (D. Wright)	large, blue, bumpy	p59
'Barkala' (un) <i>E. pulidonis</i> x <i>E. 'La Joya'</i>	small, green	
'Baron Bold' (D. Wright)	bumpy	p60
'Beefeater' = 'Beefmaster'		
'Beefmaster' (un)	frilly, grey to purple	
'Ben Badis' (C. Uhl) <i>E. purpurorum</i> x <i>E. derenbergii</i> Named by D. Cumming, Aust.	small, pale green	p61
'Beninut-Suru' (un) Japanese name.		
'Beniothine' (un) <i>E. pulidonis</i> hybrid.		
'Bergeranthus' (un) Same as <i>E. 'Bradburyana'</i> or <i>E. 'Brudbergii'</i> .		
'Berkeley' (H. Butterfield) Often incorrectly spelled <i>E. 'Berkley'</i> .	frilly, small	
'Big Blue' (un) From UK.	large, blue/grey	
'Big Blue' (un) Similar but not identical to <i>E. 'Imbricata'</i> . Name used in NZ.		
'Big Red' (un) Hybrid of <i>E. gibbiflora</i> .	large	p62
'Bittersweet' (D. Wright, 1963) Also known as <i>E. 'Ginger'</i> in Aust.	large, purple	p63
'Black Beauty' (un) <i>E. affinis</i> cultivar, may be the same as <i>E. 'Black Knight'</i> .		
'Black Knight' (un) Hybrid of <i>E. affinis</i> (a species).	very dark pointy leaves	p64
'Black Opal' (un) <i>E. 'Zorro'</i> x <i>E. 'Mauna Loa'</i>	frilly, large	
'Black Prince' (F. Reinelt) <i>E. affinis</i> x <i>E. shaviana</i> .		p65
'Blister Leaf' (nat) Should be <i>E. gibbiflora</i> 'Carunculata' (a form of the species).	bumpy, tall	
'Blondie' (D. Wright) Hybrid of <i>E. pallida</i> . Named by L. Lillie.	frilly, green	p66
'Blue & Yellow' (J. Pilbeam, UK) <i>E. chihuahuensis</i> 'Ruby Blush' x <i>E. pulidonis</i>		
'Blue Bedder' (un) Recent trade name used in the USA.		
'Blue Bird' (F. Reinelt) <i>E. subrigida</i> x <i>E. subsessilis</i>	small, white-coated leaves	p67
'Blue Boy' (D. Skinner)		
'Blue Butterfly' (un) Sometimes called <i>E. 'Jade Point'</i> in NZ.	frilly, large, blue	
'Blue Cloud' (un)	small, blue	
'Blue Crinkles' (un) Should be <i>E. 'Crinkles'</i> .		
'Blue Curl' Marketing name for a tissue cultured plant, not <i>E. 'Blue Curls'</i> .	frilly, very large	
'Blue Curls' (F. Reinelt) Sister seedling of <i>E. 'Blue Waves'</i> .	frilly, blue	p68
'Blue Flame' (un)		
'Blue Giant' (un) Large form of <i>E. shaviana</i> .	frilly	
'Blue Heron' (D. Manley) <i>E. shaviana</i> 'Pink Frills' x <i>E. subsessilis</i>		
'Blue Horizon' (L. Lillie) Sometimes called <i>E. 'Camisole'</i> in NZ.	frilly, large	
'Blue Ice' (un) Named by J. Ainsworth, Aust.		
'Blue Jay' (Denise Manley)	frilly, blue	For crested form see p190
'Blue Lagoon' (un)		
'Blue Mayes' (UK)		
'Blue Metal' (un)	small, blue	
'Blue Moon' (B. Goody, UK)		
'Blue Spur' (sm) Mutation of <i>E. 'Edna Spencer'</i> . ISI 171.	small, blue, leaves have spurs	
'Blue Surprise' (sm) Blueish form of <i>E. 'Galva'</i> . Named by van Keppel.	small, blue	
'Bluette' (un)	frilly, blue	
'Blue Waves' (F. Reinelt) Sister seedling of <i>E. 'Blue Curls'</i> . Called <i>E. 'Desert Queen'</i> in NZ.	frilly, large, blue	p69
'Blur' (D. Wright) Recent hybrid.	large, low bumps	
'Bob Jolly' (un)	small, shrubby, green	
'Bombycina' (un) <i>E. setosa</i> x <i>E. pulvinata</i> . Similar to <i>E. 'Doris Taylor'</i> .	hairy, green	
'Bonnie' (un)	frilly	
'Bouquet' (D. Wright) <i>E. derenbergii</i> x <i>E. amoena</i>	small, good flowers	
'Bradburyana' (un) Same as <i>E. 'Brudbergii'</i> and <i>E. 'Bergeranthus'</i> .	small, blue	
'Brian Smith' (un)		
'Briar Rose' (un)		

'Bright Eyes' (un) Appears to be a hybrid or sport of <i>E. secunda</i> .		
'Brilliant' (un) Name used in NZ. Called <i>E. 'Red Edge'</i> in Aust.	large	p70
'Brink's Blue' (D. Bowdery, UK) <i>E. laui</i> x <i>E. subrigida</i> (?)		
'Bronze' (E. Hummel) Hybrid of <i>E. agavoides</i> .		
'Bronze Beauty' (H. Butterfield) A form or hybrid of <i>E. agavoides</i> .	large, bronzy green	
'Brown Fingers' (un) Aust. marketing name, looks like <i>E. 'Black Knight'</i> .		
'Brown Sugar' (un) <i>E. atropurpurea</i> x <i>E. carnicolor</i>		p71
'Brudbergii' See <i>E. 'Bradburyana'</i> .	small	
'Butterfields North Border' (H. Butterfield)	frilly	
'Californica' (un) Similar to <i>E. dasyphylla</i> (a species).		
'Caligula' (un) Should be <i>E. 'Culibra'</i> .	bumpy	
'Cameo' (D. Wright) <i>E. gibbiflora</i> 'Carunculata' x <i>E. 'Edna Spencer'</i> .	bumpy	
'Camisole' (D. Wright)	frilly, large	
'Can Can' (un)		
<i>canaliculata</i> x <i>E. longissima</i> No cultivar name.	lower leaves red	p184
'Candy Corn' (un) Hybrid of <i>E. nodulosa</i> .		
'Candy Wright' (D. Wright)	frilly, pink	p72
'Capri' (un) A form or hybrid of <i>E. gibbiflora</i> .	large, blue	
'Captain Hay' (un) <i>E. derenbergii</i> hybrid.	small, pale green	p73
'Captain Nemo' (sm) Named by J. Ainsworth, Aust.	frilly, large	
'Carl von Nurnberg' See <i>E. 'Karl von Nurnberg'</i> .		
'Carlsbad' (un)		
<i>carnicolor</i> x <i>E. diffractens</i> (un) No cultivar name.		p777
'Carnitricha' (A. Graesner)		
'Carol' (B. Goody, UK) Produced at Southfield Nursery, 1996.	green, red edges	
'Carouse' (un) Very similar to <i>E. 'Frills'</i> .	frilly, large	
'Carousella' Should be <i>E. 'Conosella'</i>		
'Carrizozo' (Renee O'Connell) Recent USA hybrid.	frilly, bumpy	P777
'Carunculata' (nat?) Should be <i>E. gibbiflora</i> 'Carunculata' (a form of the species).	bumpy, tall	p74
'Cassytha' (un)	small, branching, green	
'Chalk Rose' Sometimes used for <i>E. runyonii</i> as well as <i>Dudleya brittonii</i> .		
'Chantilly' (D. Wright)	very frilly, large	p75
'Chocolate' Marketing name used in NZ for <i>E. 'Black Prince'</i> .		
'Christmas' (un) <i>E. pulidonis</i> x <i>E. agavoides</i>		p76
'Chubbs' (un) <i>E. linguifolia</i> x <i>E. ciliata</i> . Named by B. Spiller, Aust.	small, green, hairy	p77
'Chunky' (M. Kapitany) <i>E. 'Imbricata'</i> hybrid.	thick leaves	p78
<i>ciliata</i> x <i>E. nodulosa</i> (un) Similar to <i>E. 'Joan Daniels'</i> .	green, hairy, darker underneath	
'Cinderella' (D. Wright)	frilly, large	p79
'Cinnabar' (un)	frilly	
Clare (B. Goody, UK) Fantasia hybrid.		
'Clara Bell' (un)	small, green	
'Clarence Wright' (D. Wright) <i>E. fulgens</i> var. <i>obtusifolia</i> x <i>E. fimbriata</i> .		p80
'Cloud Nine' (un) Hybrid of <i>E. subrigida</i> .		
'Cloudburst' (un).	small, whitish blue	
'Cochlearis' (un) <i>E. linguifolia</i> x <i>E. atropurpurea</i>		
<i>colorata</i> x <i>E. subsessilis</i> No cultivar name.		
'Colorette' (un) Marketing name used by Colourwise Nursery, Aust.		
'Cook's Pride' (sm) <i>E. runyonii</i> hybrid. Name used only in Aust.	small, white, jagged leaf edges	
'Conosella' (un)	frilly, large	
'Corbett's Surprise' (un) UK name. Hybrid of <i>E. gibbiflora</i> 'Carunculata'.		
'Corderoyi' (nat) Should be <i>E. agavoides</i> 'Corderoyi' (form of the species).		p81
'Corymbosa' (un) Most likely <i>E. agavoides</i> x <i>E. derenbergii</i> .	small, green	
'County Fair' (un)	frilly, large	p82
'Crinita' (un) <i>E. pilosa</i> x <i>E. setosa</i>	small	
'Crinkles' (H. Butterfield) Sister seedling of <i>E. 'Curly Locks'</i> , <i>E. 'Ruffles'</i> and <i>E. 'Ripples'</i> .	blue/grey, frilly	p83
'Crolineline' Seedling from D. Wright nursery which was named by B. Spiller, Aust.	frilly, large	p84

'Crispa' (un)	frilly, large	
'Crispata' (nat) Should be <i>E. gibbiflora</i> 'Crispata' (form of the species).	frilly, tall	
'Crug Ice' (nat) A selected form of a species from Guatemala.		
'Crystal' (un) Originally sold as <i>E. glauca</i> 'Crystal'.		
'Culibra' (D. Wright)	bumpy, blue	p85
'Curly Locks' (H. Butterfield) Sister seedling of <i>E. 'Crinkles'</i> , <i>E. 'Ruffles'</i> and <i>E. 'Ripples'</i> .	frilly, blue	
'Curly Top' (un)		
'Daniella' (D. Wright)		
'Darley Dale' Should be <i>xSedeveria</i> 'Darley Dale'		p13
'Dasyphylla' (un) <i>E. amoena</i> x <i>E. agavoides</i> , similar to <i>E. 'Solicensis'</i> (?).	small, green	
'David Morlen' (un)		
'Dawn' (un) <i>E. subrigida</i> hybrid, similar to <i>E. 'Domingo'</i> .	large, blueish-white	
'De Candolle' (D. Wright)	slightly frilly	
'De Kluis' (un) Similar to <i>E. 'Leisal'</i> .	small, green, hairy	
'Debbi' (chance nursery seedling) Should be <i>xGraptoveria</i> 'Debbi' (intergeneric hybrid). ISI 1087		
'Decora' (sm) Variegated mutation of <i>E. 'Metallica'</i> (hybrid). Known since 1883.		p86
'Delli' (C. Uhl) Named by D. Cumming, Aust.	small, branching, green	
'Delight' (L. Lillie)	frilly, large	
'Derena' (D. Wright) <i>E. derenbergii</i> x <i>E. amoena</i>		
<i>derenbergii</i> x <i>E. purpusorum</i> No cultivar name.	small	p185
'Deren-Oliver' (V. Reiter) <i>E. harmsii</i> x <i>E. derenbergii</i>	small	p87
'Derenceana' (un) Possible misspelling of <i>E. 'Deresina'</i> .		
'Derenosa' Should be <i>E. 'Derosa'</i> .		
'Deresina' (un) <i>E. derenbergii</i> x <i>E. lilacina</i>		
'Derex' (un)	small, green	
'Derosa' (van Roeder) <i>E. derenbergii</i> x <i>E. setosa</i> . See <i>E. 'Worfield Wonder'</i> and <i>E. 'Hertzblut'</i> .	small	
'Derosa' This name was also used for an intergeneric hybrid.		
'Derosa Sunbeam' (un) Called <i>E. 'Hertzblut'</i> in U.K.		
'Derosa variegata' (sm) First sold by F. Hoogvliet, Holland, 1972.		
'Desert Lily' (un) Form of <i>E. lilacina</i> , name used only in NZ.		
'Desert Queen' (un) Used for <i>E. 'Blue Waves'</i> in NZ.		
'Desert Rose' Should be <i>E. lilacina</i> 'Los Reynos'.		
'Diane' (un) Grown in the UK		
'Dick Wright' (D. Wright) Named by Ruth Wright.	frilly, bumpy	p88
'Dick's Pink' (un) Not a D. Wright hybrid.	frilly	p89
'DiffRACTens' (nat) Should be <i>E. diffRACTens</i> (a species).		
<i>diffRACTens</i> x <i>E. atropurpurea</i> (un) No cultivar name.	small, pink	
<i>diffRACTens</i> x <i>E. carnicolor</i> (un) No cultivar name.		p185
<i>diffRACTens</i> x <i>E. gibbiflora</i> (un) No cultivar name.	frilly, large	p185
<i>diffRACTens</i> x <i>E. 'Phyllis Collis'</i> (un) No cultivar name.	reddish	p186
'Domingo' (D. Wright) <i>E. subrigida</i> x <i>E. runyonii</i>	large, blueish white	p90
'Dondo' (un, Germany)	small, blue	
'Doris Taylor' (W. Taylor, 1932) <i>E. pulvinata</i> x <i>E. setosa</i>	hairy	p91
'Dorothy' (H. Butterfield) Similar to <i>E. 'Curly Locks'</i> . Named by van Keppel.	frilly, blue	p92
'Double Delight' (L. Lillie) May be a spontaneous mutation of <i>E. 'Delight'</i> .	frilly, large	p93
'Douglas Huth' (un) Should be <i>Graptoveria</i> 'Douglas Huth' (intergeneric hybrid).		p13
'Dr Butterfield' (un) Not a Butterfield hybrid.	large, blueish white	p94
'Dr Cornelius' (un) Should be <i>xPachyveria</i> 'Dr Cornelius' (intergeneric hybrid).		
'Dr Huth' Should be <i>xGraptoveria</i> 'Douglas Huth' (intergeneric hybrid).		
'Dr Uhl 122' (C. Uhl) <i>E. gigantea</i> x <i>E. carnicolor</i> Sometimes incorrectly <i>E. 'Santa Barbara'</i> .		
'Druise' (un) <i>E. gigantea</i> x <i>E. diffRACTens</i>	large, frilly	
'Duchess of Nurnberg' Should be <i>E. 'Perle von Nurnberg'</i> .		
'Dusky Rose' (D. Skinner) <i>E. 'Phyllis Collis'</i> x <i>E. diffRACTens</i>		
'Early Date' Should be <i>xSedeveria</i> 'Darley Dale'.		
'Easter Bonnet' (F. Reinelt)	frilly	
'Easter Bouquet' (F. Reinelt) Similar to <i>E. 'Easter Bonnet'</i> .	frilly	

'Ebony' (nat) Should be <i>E. agavoides</i> 'Ebony' (a form of the species).	dark tips	
'Edna Spencer' (un) Chance seedling which has bumpy leaves. Not a <i>E. 'Carunculata</i> hybrid.	large, bumpy	
'Edna's Giant' (un) Supposedly a seedling of <i>E. 'Edna Spencer</i> '.		
'Elaine' (F. Reinelt) Should be <i>xPachyveria 'Elaine'</i> (intergeneric hybrid). ISI 876		
'Elaine Reinelt' Should be <i>xPachyveria 'Elaine'</i> .		
<i>elegans</i> x <i>E. hesselringiana</i> (von Poellnitz, Germany) No cultivar name.		
'Elfin Green' (un)		
'Elinor' (un) Name used only in NZ.	frilly	
'Embossed Gem' (H. Butterfield)	bumpy, blue	p95
'Emerald Isle' (un)	small, green, burgundy undersides	
'Emerald Ripple' (un) A hybrid of <i>E. ciliata</i> .	small, green hairy	p96
'Emerald Star' (un) Hybrid of <i>E. agavoides</i> 'Maria' (a form of a species).		
'Eric Walther' (un)		
'Etna' (D. Manley) Most likely <i>E. 'Mauna Loa' x E. 'Barbillon'</i> .	bumpy, large	p97
'Evergreen Rose' (un)	pale green	
'Fallax' (P. Gosset, France) <i>E. derenbergii</i> x <i>E. elegans</i>	small, compact	
'Fancy Frills' (nat) Should be <i>E. fulgens</i> var. <i>obtusifolia</i> (a form of the species).	frilly, reddish green	
'Fantasia' (R. O'Connell) New hybrid.	frilly, variegated	p98
'Fantasia hybrid' (B. Goody, UK). A series of hybrids from Southfields Nursery, UK.		
'Fasciculata' (nat) Should be <i>E. fimbriata</i> (a species) or a form of it.		p99
'Felipe Otero' (un) Could be a form of a species.	hairy, blue	
'Ferrea' (un) <i>E. scheeri</i> x <i>E. acutifolia</i>		
'Festival' (D. Wright)	large, red flowers	p100
'Fiery Spider' (un)	frilly, large	
'Fire Ball' (un)	tall, leaves not frilly	p101
'Fire Opal' (un)	frilly, large	
'Firelight' (D. Wright)	frilly, large	p102
'Firestorm' (B. Goody, UK) Galaxy series.		
'Flag Day' (un)	frilly, large	
'Flammea' (un) Similar to <i>E. 'Metallica'</i> (hybrid).	purple	
'Fleur d'Or' (D. Wright)	small	
'Florentina' (D. Wright)		
'Fluffy Ruffles' (nat) Should be <i>E. shaviana</i> (a species). Name used only in N.Z.		
'Flying Cloud' (sm) Variegated. Named by Dick Wright.		p103
'Fractal' (un)	very frilly, blue	
'Frank Reinelt' (F. Reinelt) <i>E. agavoides</i> 'Prolifera' x <i>E. colorata</i> , ISI 1467.		p104
'Freckles' (L. Lillie)	frilly, small, spotted leaves	
'Fred Ives' Should be <i>xGraptoveria</i> 'Fred Ives' (intergeneric hybrid).		p13
Fred Wass (un) <i>E. gibbiflora</i> 'Metallica' x <i>E. fulgens</i> . Named by B. Fearn, UK.	large	
'Fridissima' (un)	shrubby, green, small leaves	
'Friede' (un) Should be <i>E. pilosa</i> 'Friede' (a form of a the species)	hairy	
'Frills' (un) Name used for several unrelated plants.		
'Frilly Maid' (H. Butterfield)	frilly	p105
'Frosted Sugar' See <i>E. 'Graessneri'</i> .		
'Frosty' (nat) Should be <i>E. leucotricha</i> 'Frosty' (a form of the species). Named by Dick Wright.	hairy, white	p106
'Frosty' (nat) Should be <i>E. pulvinata</i> 'Frosty' (a form of the species). ISI 1390	hairy, white, small, branching	p107
'Fulgens' (nat) Should be <i>E. fulgens</i> . Called <i>E. 'Clarence Wright'</i> in N.Z.	frilly, reddish green	
'Funkii' (un) Sometimes called <i>E. 'Funky'</i> .	small, blue	
'Gala Gambler' (L. Lillie)	frilly, large, blue	
'Giant Mexican Firecracker' (C. Uhl) Hybrid of <i>E. pulvinata</i> .	tall, green, hairy	p108
'Giant Mexico' (un) Should be <i>E. colorata</i> 'Mexican Giant'.	bluish-white	
<i>gigantea</i> x <i>E. carnicolor</i> (un) Called <i>E. 'Dr Uhl 122'</i> in Aust. No cultivar name.		
<i>gigantea</i> x <i>E. sanchez-mejoreadae</i> Looks like <i>E. gigantea</i> . No cultivar name.	large, blue	
'Gilia' (nat) A form of <i>E. pulvinata</i> ? A form of <i>E. gibbiflora</i> ?		
'Gilva' (van Keppel, Holland) <i>E. agavoides</i> x <i>E. elegans</i> Incorrectly called <i>E. simulans</i> .		p109
'Gilva Red Form' Should be <i>E. 'Red Gilva'</i> .		

'Ginger' (un) Similar to <i>E. 'Bittersweet'</i> . Name used only in Aust.	frilly, large	
'Gingerbread' (un)	frilly, large	p110
'Ginmedian' (un)	large, yellowish	
'Ginmei-Tenryo' (un)	small, branching, green	p111
'Glauco-Metallica' (un) Should be <i>E. 'Imbricata'</i>		
'Glen Eden' (un) Similar to <i>E. dactylifera</i> .	large, purple with wavy edges	
'Glenda' (B. Goody, UK) Produced at Southfield Nursery, 1995.	green, red edges	
'Glitters' (un) Hybrid or a form of <i>E. setosa</i> .	small, green, hairy	p112
'Ghost Buster' (R.Grim) 1977 hybrid of <i>E. colorata</i> x <i>E. elegans</i> . ISI 2005-20		
'Golden Girl' (un)	frilly, large	
'Golden Glow' (un)	large, yellow, green	p113
'Golden State' (D. Wright)		
'Golden Towers' (un) <i>E. pittieri</i> x <i>E. diffractens</i>		
'Gossotii' (un) Hybrid or intergeneric cross, very old.		
'Graessneri' (van Keppel, Holland) <i>E. derenbergii</i> x <i>E. pulvinata</i> . Also called <i>E. 'Frosted Sugar'</i> .	green, leaves rough	
'Grammut' (E. Hummel) Hybrid of <i>E. agavoides</i> .	small, bronzy green	
'Grandisepala' (un) <i>E. gibbiflora</i> 'Metallica' x <i>E. rosea</i>	large	
'Green and Red' (un) Named by Naomi Bloss.	frilly	
'Green Gentle' (sm) Crested plant.		
'Green Goddess' (un) Very similar to <i>E. 'Blondie'</i> .	frilly, large, green	
'Green Leaf' (un) Should be <i>E. purpurorum</i> 'Green Leaf' (a form of the species)	leaves without purple	
'Green Velvet' (nat) Should be <i>E. coccinea</i> (a species).	tall, hairy	
'Grey Fox' Should be <i>E. affinis</i> (grey form).		
'Gusto' (D. Wright) <i>E. amoena</i> x <i>E. derenbergii</i>	small	
'Gypsy' (D. Wright, 1959) <i>E. gibbiflora</i> x <i>E. 'Berkeley'</i>	very large	p114
'Haageana' (van Roeder, Holland) <i>E. agavoides</i> x <i>E. derenbergii</i>	green, small	
'Hamaikan' (un)	dark, thick, pointed leaves	
'Harbingii' (un) Old hybrid	frilly	p115
'Harrietta' (D. Wright)		
'Harry Butterfield' (un) Named by D. Wright.	large	p116
'Harry Watson' Should be x <i>Graptoveria</i> 'Harry Watson' (intergeneric hybrid).		
'Herstal' (un) Similar to <i>E. cante</i> (a species).	large, white	
'Hertzblut' Same as <i>E. 'Derosa'</i>		
'Hoffmannii' (un)		
'Hot Chocolate' (un) Looks like <i>E. 'Black Prince'</i> , name used only in NZ.		
'Hot Lips' (nat) Should be <i>E. agavoides</i> (a species). Marketing name only.		
'Hoveyi' (sm) Variegated <i>E. secundata</i> (?) hybrid.		p117
'Huelma' (un) Misspelling of <i>E. 'Thelma'</i> , should be <i>E. 'Thelma O'Reilly'</i> .		
'Hummel's cross' Should be <i>E. 'Grammut'</i> .		
'Hummel's Mini Belle' Should be <i>E. 'MiniBelle'</i> .		
'Huth's Pink' Should be x <i>Graptoveria</i> 'Douglas Huth' (intergeneric hybrid).		
'Icyle' (un) <i>E. agavoides</i> x <i>E. leucotricha</i> . Misspelling appears to be intentional.	shrubby, hairy	p118
'Ileen' (un) <i>E. pulidonis</i> x <i>E. chihuahuensis</i> 'Ruby Blush'	grey, yellow flowers	
'Illia' (un) <i>E. pulidonis</i> x <i>E. agavoides</i>		
'Imbricata' (M.Deleuil, France) <i>E. glauca</i> x <i>E. gibbiflora</i> 'Metallica' Hybrids from late 1800s.		p119
'Incandesca' (Renee O'Connell) New USA hybrid.	frilly, large	
'Indecorata' (Gossot, France)		
'Ivesy' Should be x <i>Graptoveria</i> 'Fred Ives'		
'Ivory' (un)		
J. van Keppel 68937' (van Keppel, Holland) Hybrid of <i>E. agavoides</i> . ISI 1557		
'Jack Jones' (un)		
'Jack Smith' (un) UK hybrid.		
'Jade Point' (un) Hybrid of <i>E. agavoides</i> .	small, green	p120
'Jade Star' (B. Grimm) <i>E. agavoides</i> hybrid.		
'Jamatorun' Most likely a misspelling of <i>E. 'Yamatoren'</i> .		
'Janelle's Passion' Should be <i>E. 'Topsy Turvy'</i> .		

'Japanese hybrid' (un) Should be <i>E. 'Morning Dew'</i> . A hybrid of <i>E. ciliata</i> .	small, hairy	
'Japanese Purple' (un) Looks somewhat like <i>E. 'Orpet's Chocolate'</i> .		p121
'Jenny' (B. Goody, UK) Fantasia hybrid.		
'Joan Daniel' (un) <i>E. ciliata</i> x <i>E. nodulosa</i>	small, green, hairy, dark undersides	p122
'Jocelyn's Joy' (sm) A monstrose form of <i>E. gibbiflora</i> 'Violescens'. Named by J. Ainsworth, Aust.	shrubby, lime green	p123
'Josef' (C. Uhl) Named by D. Cumming, Aust.		
'Joy's Giant' (nat) A form of <i>E. gibbiflora</i> .		p124
'Juniper' (C. Uhl) Named by D. Cumming, Aust.	small	
'Jupiter' (B. Goody, UK) Southfield Nurseries, 2000.		
'Karl von Nurnberg' (un) A darker form of <i>E. 'Perle von Nurnberg'</i> .		
'Katella I' (D. Wright) Should be <i>E. 'Meridian'</i> .		
'Katella II' (D. Wright)	frilly, large	
'Katella IV' (D. Wright)	frilly, large	
'Katella Princess' (nat) Marketing name, used for <i>E. fulgens</i> var. <i>obtusifolia</i> (a species).		
'Katelops' (un) May be a misspelling of <i>E. 'Katella'</i> .		
'Kei' (un)	frilly, large	
'Kernii' (un)	small	
'Kilauea' (D. Wright) New hybrid.	frilly, bumpy	P186
'La Femme' (D. Wright)	frilly, large	
'La Joya' (un)	small, bluish white	
'La Rochette' (V. Reiter) Should be x <i>Pachyveria</i> 'La Rochette' (intergeneric hybrid).		
'Labyrinth' (R. O'Connell) Recent USA hybrid.	frilly, bumpy	
'Lace' (un)	frilly with a few bumps	
'Lady's Choice' (un) Hybrid of <i>E. agavoides</i> .	lemon/green	
'Laetivirens' (M. Deleuil, France, 1870s) <i>E. agavoides</i> x <i>E. glauca</i>		
'Lancefolia' (M. Deleuil, France, 1877) <i>E. rosea</i> x <i>E. glauca</i>		
<i>lauri</i> x <i>E. papillosa</i> (un) No cultivar name.	rough, almost pimply texture	
'Laurel' (un) Hybrid of <i>E. dactylifera</i> .		
'Lavender Girl' (un) <i>E. gibbiflora</i> x <i>E. diffractens</i>	grey, purple	
'Lavender Hill' (P. Collis)	blue/grey	
'Lavender Hue' (un)	purple/grey	
'Lavender Lady' (un) UK hybrid of <i>E. subrigida</i> .		
'Lavender Queen' (E. Orpet)		
'Leisal' (C. Uhl) Named by D. Cumming, Aust.	small, green	p125
'Lemon Twist' (J. Napton) Possible hybrid of <i>E. pallida</i> .	yellow/green	p126
'Lemon Twist' (un) Used in New Zealand for a plant similar to an <i>E. 'Imbricata'</i> with red edges.		
'Lemonade' (sm) Variegated sport of <i>E. 'Meridian'</i> . Named by Dick Wright.		
'Leucaria' (un) Hybrid of <i>E. pulvinata</i> , possibly with <i>E. harmsii</i> .	shrubby, green, hairy	
'Leucosina' (G. Fuge, UK) <i>E. leucotricha</i> x <i>E. potosina</i> (now <i>E. elegans</i>).		
'Liberty' (nat) Should be <i>E. alata</i> .		
'Liestal' (un) May be another spelling of <i>E. 'Leisal'</i> .		
'Lila's lutea' (L. Lillie) Hybrid of <i>E. lutea</i> (a species).		p186
'Lilac Belle' (un)	small	
'Lilac Frost' (R. O'Connell) Recent USA hybrid.	frilly, bumpy	p127
'Lily' (un) Similar to <i>E. 'Gilva'</i> .	large, bluish	
'Lime Lady' (un) Should be <i>E. agavoides</i> or a hybrid of it.		
'Lime Rickey' (G. Collins) Similar to <i>E. 'Imbricata'</i> but with green leaves.		
'Limey' (un) Named by Naome Bloss.	small, green	
<i>lindsayana</i> x <i>E. cuspidata</i> (un) UK hybrid. No cultivar name.	grey/green	
<i>lindsayana</i> x <i>E. laui</i> (un) UK hybrid. No cultivar name.		
'Lipstick' (nat) A form of <i>E. agavoides</i> (a species).	strong red markings	
'Lipstick' (nat) Assumed to be a form of <i>E. multicaulis</i> (a species).	small, shrubby	p128
'Little Blue Rose' (un)	frilly, blue	
'Lola' (D. Wright) <i>E. lilacina</i> x <i>E. derenbergii</i> , much like <i>E. 'Deresina'</i> .		p129
'Los Reynos' (nat) Should be <i>E. lilacina</i> or a form of it. Also called <i>E. 'Desert Lily'</i> in N.Z.		
'Lucina' (un)		

'Lucida' (nat) Should be <i>E. racemosa</i> var. <i>racemosa</i> (a form of the species).		
'Lurida' (nat) Should be <i>E. racemosa</i> var. <i>racemosa</i> (a form of the species).		
'Lucita' Incorrectly sometimes used in Australia for <i>E. 'Alma Wilson'</i> .		
'Lucita' (un) <i>E. subrigida</i> x <i>E. elegans</i> (?)	blueish-white	
'Lynne Rucker' (H. Butterfield)		
'Lyra' (un)		
'Mac Davis' (un)		
'Macabeana' (nat) Should be <i>E. agavoides</i> 'Macabeana' (a form of the species).	small, forming dense clumps	p131
'Madamoiselle' (D. Wright)	frilly, large	p132
'Mahogany Rose' (D. Wright)	large, dark	
'Manda's Hybrid' (un)		
'Marcus Jones' (D. Wright)	small, dark green	
'Margaret Reppin' Should be <i>xGraptoveria</i> 'Margaret Reppin' (intergeneric hybrid).		
'Marginata' (un)		
'Maria' Should be <i>E. agavoides</i> 'Maria' (a form of the species). ISI 92-45		
'Marjorie Pogue' (H. Butterfield)		
'Mars' (B. Goody, UK) Name used in Aust. for a different plant.		
'Martin's Hybrid' (un) <i>E. agavoides</i> hybrid.		
'Marvella' (D. Wright)		
'Marybell' (un)	frilly, blue	
'Mary Butterfield' (H. Butterfield)	frilly, large, purple	p133
'Mary Diane' (H. Butterfield)	green with red edges	
'Mary Ethel' (H. Butterfield) Appears to be the same as <i>E. 'Frills'</i> .		
'Mary Too' (un)	frilly	
'Mauna Loa' (D. Wright) Hybrid of <i>E. gibbiflora</i> 'Carunculate'.	bumpy, frilly, large	p134
'Maue Beauty' (un) Appears to be a large growing <i>xGraptoveria</i> (intergeneric hybrid).		
'Mercury' (G. Goody) Southfield Nurseries, 2000.		
'Meridian' (D. Wright) Formerly called <i>E. 'Katella I'</i> .	frilly, large, green	
'Merithel' Most likely a misspelling of <i>E. 'Mary Ethel'</i> .		
'Metallica' (nat) Should be <i>E. gibbiflora</i> 'Metallica' (a form of the species).	purple/grey	
'Metallica' (un) A hybrid of <i>E. gibbiflora</i> which is often mistaken for the above.		
'Mexecensis' Could be a <i>E. peacockii</i> hybrid.		
'Mexican Blue' Should be <i>Graptopetalum superbum</i> (a species).		
'Mexican Firecracker' Should be <i>E. 'Giant Mexican Firecracker'</i> .		
'Mexican Snowball' (nat) Should be <i>E. elegans</i> (a species).		
'Mexico City' (un) A form or hybrid of <i>E. gibbiflora</i> .		
'Mexico Giant' (nat) Should be <i>E. colorata</i> 'Mexican Giant' (a form of the species).	blueish white	p136
'Minaro-No-Homare' (un) Japanese name.		
'Minas' (un)	seasonally frilly, brown	p137
<i>minima</i> x <i>E. secunda</i> (un) No cultivar name.		p187
'Miribilis' (un) <i>E. linguifolia</i> x <i>E. scheeri</i>		
'Misty Cloud' (sm) Sport of <i>E. 'Meridian'</i> .		p138
'Molon' (C. Uhl) Named in Aust. by D. Cumming.		
'Monte Blue' (un)		
'Moon Goddess' (un)	frilly, pink	
'Moovisii' (un) Similar to <i>E. multicaulis</i> .		
'Morgain' (un) Hybrid of <i>E. agavoides</i> .		
'Morning Beauty' (nat) Similar to <i>E. peacockii</i> (a species).		
'Morning Dew' (un) Hybrid of <i>E. ciliata</i> .		
'Morning Light' (D. Worth) <i>E. cante</i> x <i>E. shaviana</i> Sister seedling to 'Afterglow and 'Morning Star'.	seasonally frilly	p139
'Morning Star' (D. Worth) <i>E. cante</i> x <i>E. shaviana</i> Sister seedling to 'Afterglow and 'Morning Light'.	leaves show some frilliness	
'Mr and Mrs Hollister' (un)		
'Mr Small' (un) A form or hybrid of <i>E. gibbiflora</i> .		
'Mt Etna' Should be <i>E. 'Etna'</i> .		
<i>multicaulis</i> hybrid (un)		
'Multifida' (nat) Should be <i>E. agavoides</i> 'Multifida' (a form of the species).		

'Mutabilis' Moved from <i>Echeveria</i> to <i>Cremneria</i> .		
'Naomi' (un) Named by Sam Williams.	bumpy	
'New Age' (un) <i>E. agavoides</i> hybrid. Named by Naomi Bloss.	small	
'Nivalis' (un)		
'Nixiana' (un) Similar to <i>E. elegans</i> .	small, blue/white	
'Nubbles' (M. Kinnach) Hybrid (1950s) of <i>E. gibbiflora</i> 'Carunculata'.	bumpy	p140
'Oceana' (D. Wright)		
'Oliver's Palate' (un) <i>E. derenbergii</i> hybrid. Name used only in NZ.	small	
'Opalina' Should be <i>xGraptoveria</i> 'Opalina' (intergeneric hybrid). ISI 1853	small	
'Orange Balloon' (un) UK		
'Orange Splendour' (un) UK		
'Oreaseana' (un) Possibly a misspelling of <i>E. 'Deresina'</i> .		
'Orpet's Chocolate' (E. Orpet)	large	p141
'Ovata' (un) <i>E. scheeri</i> x <i>E. gibbiflora</i>		
'Pachyphytoides' (un) Known from at least 1874.		
'Pagoda' (D. Wright) New hybrid.	small, bumpy	P188
'Painted Beauty' (nat) = <i>E. nodulosa</i> 'Painted Beauty' ISI 1137 (a form of the species).	red stripes	p142
'Painted Frills' (un) <i>E. nodulosa</i> x <i>E. shaviana</i>	frilly	
'Painted Lady' (un) Hybrid of <i>E. derenbergii</i> .	small	
'Painted Lady' (nat) Name also used for <i>E. derenbergii</i> (a species).		
'Palmeri' Considered a synonym for <i>E. subrigida</i> .		
'Pappy's Rose' (D. Wright)		p143
'Party Dress' (D. Wright)		
'Parva' (un) <i>E. purpusorum</i> x <i>E. pumila</i> ISI 804		
'Paradoxa' (un) Should be <i>xPachyveria</i> 'Paradoxa' (intergeneric hybrid).		
'Patina' (C. Uhl) Hybrid of <i>E. laui</i> . ISI 89-51.	blue, large	
'Paul Bunyan' (D. Wright, 1960) <i>E. gibbiflora</i> 'Carunculata' x <i>E. 'Edna Spencer'</i>	bumpy, blue	p144
'Pearl of Nurnberg' Should be <i>E. 'Perle von Nurnberg'</i> .		
'Perbella' (un)	red tips	
'Perle Von Nurnberg' (Graessner, Germany) <i>E. gibbiflora</i> 'Metallica' x <i>E. potosina</i> (now <i>E. elegans</i>). (for crested from see p 191)		P145
'Petticoat' (D. Wright)	frilly	p146
'Phyllis Collis' (R. Collis) <i>E. affinis</i> x <i>E. cante</i>		p147
'Phyllis Collis' x 'Alfred Graf' (un) No cultivar name.		p???
'Pink Beauty' (un) Name sometimes used for <i>E. diffractens</i> (a species).		
'Pink Frills' (un) Should be <i>E. shaviana</i> 'Pink Frills' (a form of the species).	frilly, pink	p148
'Pink Frost' (un)		
'Pink Gem' (un)		
'Pink Lady' (un) Appears to be a <i>xGraptoveria</i> .		
'Pink Marble' (un)	frilly	
'Pink Perle' Should be <i>E. 'Perle von Nurnberg'</i> .		
'Pink Ruffles' See <i>E. 'Pink Frills'</i> .		
'Pink Two' (un) UK hybrid of <i>E. subrigida</i> .		
'Pinky' (M. Kinnach, 1961) <i>E. shaviana</i> x <i>E. cante</i> ISI 697.		p149
'Pinwheel' (nat) Should be <i>E. tuxpanensis</i> 'Pinwheel'.	small	
'Pippa' (B. Goody, UK) <i>Fantasia</i> hybrid.		
'Poloma' (un)	whitish blue	
'Popsicle' (sm) Mutation of <i>E. 'Reims'</i> . Named by J. Ainsworth, Aust.		
'Powder Blue' (un) Hybrid of <i>E. subrigida</i> . Also called <i>E. 'White Rose'</i> .		p150
'Powdered Sugar' (C. Uhl) Should be <i>E. 'Graessneri'</i> .		
'Princess Anne' (un)	frilly, large	
'Princess Lace' (D. Wright) Named by L. Lillie (?).	frilly, large	p151
'Prolifera' (nat) Should be <i>E. agavoides</i> 'Prolifera' (a form of the species).		
'Prolifera' (un) Name also used for a hybrid.		
'Pruinosa' <i>E. linguifolia</i> x <i>E. coccinea</i> Now a <i>xCremneria</i> hybrid.		
'Pulchella' <i>E. amoena</i> hybrid. An old cultivar from the 1870s or a <i>Cremneria</i> hybrid.	small, green	
<i>puldonis</i> x <i>E. agavoides</i> (un) No cultivar name.		

<i>pulidonis</i> x <i>E. chihuahuensis</i> Appears similar to <i>E. pulidonis</i> x <i>E. lindsayana</i> . No cultivar name.		
<i>pulidonis</i> x <i>E. lindsayana</i> (un) No cultivar name.		p187
<i>pulidonis</i> x <i>E. purpusorum</i> No cultivar name.		
'Pulvi-Carn' (V. Reiter, 1933) <i>E. carnicolor</i> x <i>E. pulvinata</i> Similar to <i>E. pulvinata</i> .		
'Pulvicox' (un) <i>E. pulvinata</i> x <i>E. coccinea</i>	shrubby, green, hairy	p152
'Pulvi-Set' (un) <i>E. pulvinata</i> x <i>E. setosa</i>	hairy	
'Pulv-Oliver' (V. Reiter, 1932) <i>E. pulvinata</i> x <i>E. harmsii</i>		
'Purple Queen' (un)		
'Rainbow' (un) <i>E. cante</i> hybrid?. Used incorrectly for <i>E. lozanii</i> in Aust.		
'Rainbow Sunset' (G. Gooch, NZ) Name used only in NZ.	red edges	
'Rain Drops' (D. Wright)	bumpy, small	p153
'Ramietta' Should be <i>E. Ramillete</i> .		
'Ramillete' (D. Wright)	small, green	p154
'Ravalis' (un)	blue	
'Raymondii' (sm) An old variegated species or hybrid.		
'Rays Beauty' (B. Goody, UK) <i>E. 'Princess Lace</i> x <i>E. 'Silveron Red'</i>	frilly, large	
'Recurvata' (sm) Monstrose form of <i>E. coccinea</i> (a species).	tightly curved leaves	
'Red Baron' (sm) Sport of <i>E. 'Zorro'</i> . Named by B. Spiller, Aust.	frilly, large	p155
'Red Edge' (un) Similar to <i>E. 'Brilliant'</i> .		
'Red Edge' (nat) Should be <i>E. agavoides</i> 'Red Edge' (a form of the species). Named by E. Walther 1972.		
'Red Frills' Should be ' <i>E. Mauna Loa</i> '. Name used only in Aust.		
'Red Gilva' (un) Should be <i>E. 'Gilva Red Form'</i> .		
'Red Sails' (un)	frilly, large, bumpy	
'Red Sapphire' (D. Wright)	frilly, large, red	
'Red Top' (un) Hybrid of <i>E. agavoides</i> .		
'Red Trump' (D. Wright) Seed parent was <i>E. 'Red Wing'</i> .	frilly, large, red	p156
'Red Wing' (un)		
'Regalia' (H. Butterfield) Named by D. Wright.	frilly	
'Reims' (un)		
'Retusa Autumnalis' (un) <i>E. glauca</i> x <i>E. fulgens</i>		
'Retusa' hybrid (un) <i>E. fulgens</i> x <i>E. gibbiflora</i> 'Metallica'		
'Richard' (un) Name used in Australia only. Incorrectly used for <i>E. gibbiflora</i> 'Crispata'.	frilly	
'Richard' (un) Sometimes written as <i>E. 'Richards'</i> . A different plant from the above.	frilly, large	
'Riga' (un)		
'Ripples' (H. Butterfield) Sister seedling of <i>E. 'Crinkles'</i> , <i>E. 'Ruffles'</i> and <i>E. 'Curly Locks'</i> .	frilly	p157
'Rippling Waters' (un)	frilly, grey	p158
'Rococo' (un) Should be <i>E. 'Rippling Waters'</i>		
'Ron Evans' (van Keppel, Holland) <i>E. setosa</i> x <i>E. amoena</i> . Named by Adrian Fearn, UK.	small, green, red tips	
'Rondelli' (nat) Should be <i>E. setosa</i> var. <i>diminuta</i> (a form of the species).	small, hairy	
'Rosa Lee' (D. Wright)	large, frilly purple/brown	p159
'Rosacea' (un) <i>E. glauca</i> x <i>E. secunda</i>		
'Rosea Grandis' (nat) Form of <i>E. crenulata</i> (a species).		
'Ross' (un) Similar to <i>E. dactylifera</i> .		
'Roy Ginns' (Loake, UK) <i>E. subrigida</i> x <i>E. harmsii</i> No cultivar name.		
'Royal Curl' (nat) Should be <i>E. crenulata</i> 'Royal Curl' (a form of a species).		
'Rubella' (von Poellnitz, Germany) <i>E. agavoides</i> x <i>E. cuspidata</i>	large, green	
'Ruberia' Most likely <i>E. 'Rubella'</i>		
'Rubescens' (M. Deleuil, France) <i>E. 'Imbricata'</i> x <i>E. atropurpurea</i>		
'Ruby' (nat) Should be <i>E. pulvinata</i> 'Ruby' (a form of the species).		p160
'Ruby Blush' (nat) Should be <i>E. chihuahuensis</i> 'Ruby Blush' ISI 642. Named by M. Kimmach.		
'Ruby Lips' (un)	large	p161
'Ruffles' (H. Butterfield) Sister seedling of <i>E. 'Crinkles'</i> , <i>E. 'Ripples'</i> and <i>E. 'Curly Locks'</i> .	frilly, blue	
'Rundelli' Should be <i>E. setosa</i> var. <i>diminuta</i> (a form of the species).		
'Ruth Jane' (D. Wright)	frilly	
'Salsa Verde' (C. Uhl) <i>E. canaliculata</i> x <i>E. longissima</i> ISI 1847	green with red splotches	
'Sandrinak' (un)		p162

'Santa Barbara' (C. Uhl)		
'Saratoga' (un) Named by B. Spiller, Aust.		
'Sarleys Pale' Should be <i>xSedeveria</i> 'Darley Dale' (intergeneric hybrid).		
'Sayulensis' (un) <i>E. secunda</i> x <i>E. gibbiflora</i> Named by E. Walther, 1972.		
'Scanavino' (un)		
'Scaphophylla' (un) Known from at least 1874. Often confused with <i>E. 'Scaphylla'</i> .		
'Scaphylla' (M. Deleuil, France, 1872) <i>E. agavoides</i> x <i>E. linguifolia</i>		
'Scarlet Queen' (V. Reiter)		
'Scarletta' (G. Collins)	frilly, large, dark leaves	P163
'Schichi-Kuks' (un) Japanese hybrid, = 'E. Shimo-Yama' (?)		
'Schurei' (un) Similar to <i>E. 'Perle von Nurnberg'</i> .		
'Scopulorum' (nat) Should be <i>E. fulgens</i> var. <i>obtusifolia</i> (a form of the species).		
'Scott Haselton' (nat) Should be <i>E. gigantea</i> 'Scott Haselton'.		
'Sea Dragon' (R. O'Connell) New USA hybrid.	frilly	p164
<i>secunda</i> x <i>E. shaviana</i> (un) UK hybrid. No cultivar name.	blue, small	
'Semnan' (C. Uhl) Named in Aust. by D. Cumming.		
'Setata' (un) Hybrid or form of <i>E. setosa</i> .	small, green, hairy	
'Setorum' (V. Ploem, Holland) <i>E. purpusorum</i> x <i>E. setosa</i> A number of seedlings were produced with the same name.		
'Setorum Victor' (un) Selected clone of the above.		
'Set-Oliver' (V. Reiter 1932) <i>E. harmsii</i> x <i>E. setosa</i>	green, hairy, small, shrubby	p165
'Setosa Hybrid' (un)		
'Set-spruce' (un)	green, small, shrubby	
'Shamrock' (un) <i>E. purpusorum</i> hybrid.	small, compact, red edges	p166
'Sharon' (un)	frilly, large	
<i>shaviana</i> x <i>E. bifida</i> (nat) No cultivar name. ISI 1848		
'Sierra' (un)	small, grey	
'Silveron Red' (D. Wright)	frilly, large	p167
'Skinnerii' (nat) Should be <i>E. skinneri</i> (a species).		
'Sneedii' (un) Probably <i>E. subrigida</i> or a form of it.		
'Soledad' (D. Skinner) Similar to <i>E. 'Worfield Wonder'</i>		
'Solicensis' see <i>E. 'Dasyphylla'</i>		
'Son of Pearl' Seedling of <i>E. Perle von Nurnberg</i> . ISI 2000-52		
'Sonnenstrahl' Should be <i>E. 'Derosa'</i> .		
'Southern Belle' (un) Should be <i>xGraptoveria</i> 'Southern Belle' (intergeneric hybrid).		p13
'Sp Mexico Giant' Should be <i>E. colorata</i> 'Mexican Giant'.	blueish-white	
'Sp Rauch' (nat) Most likely <i>E. rauschii</i> , which is now correctly <i>E. whitei</i> .	tall, pointy green leaves	
'Spaceshot' (B. Goody) Southfield Nurseries, 2000.		
'Spider' Should be <i>E. 'Topsy Turvy'</i> .		
'Spirit of 76' (C. Uhl) Should be <i>xGraptoveria</i> 'Spirit of 76' (intergeneric hybrid). ISI 1148		
'Splendor' (un)	frilly, red	
'Spring Morning' (un) UK hybrid of <i>E. subrigida</i> . Could be an intergeneric hybrid.		
'Spring Showers' (un)	blueish white	p168
'Spruce-Oliver' (V. Reiter) <i>E. sprucei</i> x <i>E. harmsii</i>		p169
'Squeezed' (un) Should be <i>E. 'Red Edge'</i> .		
'Stardust' (B. Goody) Southfield Nurseries, 2000.		
'Starlite' (B. Goody) Southfield Nurseries, 2000.	small, pale green	
'Stolonifera' (un) <i>E. secunda</i> x <i>E. grandifolia</i> (<i>E. gibbiflora</i>)		
'Strawberry Heart' (D. Wright)		
'Strawberry Paddle' (un)	frilly, large	
'Suave' (nat) Correct name for <i>E. pulvinata</i> 'Frosty'.		
'Sugard' (C. Uhl) Also sometimes incorrectly spelt <i>E. 'Sugar'd'</i> . Named by D. Wright.	leaves appear frosted	p170
'Sunburst' May be the same as <i>E. 'Tippy'</i> . Name also used for a hybrid or form of <i>E. colorata</i> .	small, dark leaf tips	
'Sundancer' (D. Wright)	frilly, large	p171
'Sunkissed' (B. Goody, UK)		
'Sunset' (sm?) Variegata	leaves relatively long and pointed	
'Sunshine' (un) Should be <i>E. derenbergii</i> (a species) or hybrid of it.		

'Texas Rose' (nat) Should be <i>E. runyonii</i> (a species).		
'Thelma O'Reilly' (H. Butterfield) Also called <i>E. 'Thelma'</i> .	large	p172
'Tie Dye' (Renee O'Connell) New USA hybrid.	frilly, variegated	p191
'Tina' (un)	small, dark green	
'Tingdene' (un) Sister seedling of <i>E. 'Phyllis Collis'</i> but more chunky.		
'Tippy' (D. Wright) Hybrid of <i>E. colorata</i> . Also called <i>E. 'Sunburst'</i> .		p173
'Topper' (D. Skinner)	slightly frilly, small	
'Topsy Turvy' (sm) Should be <i>E. runyonii</i> 'Topsy Turvy'. ISI 1647 Named by M. Kinnach.		p174
'Tortulosa' (un) <i>E. coccinea</i> x <i>E. bifida</i> (?)		
'Translucida' (un) <i>E. gibbiflora</i> 'Metallica' x <i>E. peacockii</i>		
'Trigdene' A misspelling of <i>E. 'Tingdene'</i> (?).		
'Truffles' (nat) Should be <i>E. shaviana</i> 'Truffles'. Named by C. Glass.		p175
'Tucson Blue' (un) Name used only in Aust.	large, whitish blue	
'Tudor Rose' (un)		
'Tutti Frutti' (un)	frilly	
'Tuxpan' (un)	small, blueish white	
'Twilight' (D. Wright)	frilly	
'Twinkle' (B. Goody) Southfields Nurseries, 2000		
'Valentine' (D. Wright)	frilly, red/purple	
'Valida' (un)		
'Van Breen' (J.A. van Breen, Holland, 1964) <i>E. derenbergii</i> x <i>E. carnicolor</i>	small, blueish white	
'Van Heet' (un) Appears to be a <i>E. harmsii</i> hybrid.	small branching shrub	
'Van Keppel 67145' (van Keppel, Holland) <i>E. agavoides</i> x <i>E. albicans</i>	small, red tips	
'Van Keppel 68937' (van Keppel, Holland) Very compact form of <i>E. agavoides</i> x <i>E. albicans</i> .		p176
'Vashon' (un) Hybrid or form of <i>E. agavoides</i> .		p177
'Venus' (B. Goody) Southfields Nurseries, 2000.		
'Vesuvius' (D. Manley) Sister seedling of <i>E. 'Etna'</i> .	frilly, bumpy	
'Victor' Mislabeling of 'Setorum Victor'.		
'Victor' (V. Reiter) <i>E. derenbergii</i> x <i>E. harmsii</i> , same as <i>E. 'Deren-oliver'</i> .		
'Victor Reiter' (E. Reinelt) <i>E. agavoides</i> 'Prolifera' x <i>E. parrasensis</i> . ISI 645		
'Violer' (sm) Mutation of <i>E. violascens</i> (a species). Named by J. Ainsworth, Aust.		
'Violescens' (nat) Should be <i>E. gibbiflora</i> 'Violescens' (a form of the species).	mauve to pinkish	p178
'Violet Beauty' (un)		
'Violet Queen' (E. Orpet) Incorrectly called <i>E. subsessilis</i> in N.Z.	small, whitish blue	p179
'Virginia Lee' (D. Wright)	bumpy, large, blue	p180
'Walady' (un)	frilly	p181
'Waltheri' Should be <i>E. 'Eric Walther'</i> . There is also an <i>E. waltheri</i> (a species).		
'Water Lily' (un) Similar to <i>E. 'Gilda'</i> .		
'Wavy Curly' (E. Reinelt) Similar to <i>E. 'Truffles'</i> .		
'Weingartii' (van Roeder, Holland)	bronze tones on green	
'Western Blue' (un)		
'White Cloud' (un)		
'White Dondo' Should be <i>E. 'Dondo'</i> .	whitish blue	
'White Nun' Should be x <i>Pachyveria</i> 'White Nun' (intergeneric hybrid).		
'White Rose' (un) Should be <i>E. 'Powder Blue'</i> .		
'Winter Sunset' (un) A form or hybrid of <i>E. 'Imbricata'</i> .		
'Worfield Wonder' (un) Similar to <i>E. 'Derosa'</i> .		p182
'Worthy One' Should be x <i>Cremnoveria</i> (?) 'Worthy One' (intergeneric hybrid).		
'Worthy Two' As above (?).		
'Yamatoren' (un) Japanese name.	small, narrow green leaves	
'Zahnii' (sm) Reversion of the variegated <i>E. 'Hoveyi'</i> . Named by van Keppel Holland, 1964.		
'Zanadoo' (sm) Sport of <i>E. 'Zorro'</i> . Named by B. Spiller, Aust.	frilly, large	
'Zaragoza' (un) Should be <i>E. cuspidata</i> var. <i>zaragozae</i> (a species).	small, narrow blueish white	
'Zipper' (un) Ends of leaves highly irregular.	frilly, blue	
'Zorro' Seedling from D. Wright nursery which was named by B. Spiller, Aust.	large, frilly, purple/brown	p183

Current list of accepted species

The date is the year the plant was given its name. The symbol • after the date signifies those species which have been used to create named hybrids.

Echeveria acutifolia (1842)
Echeveria affinis (1958) •
Echeveria agavoides (1863) •
Echeveria alata (1941)
Echeveria amoena (1875) •
Echeveria amphoralis (1958)
Echeveria angustifolia (1972)
Echeveria atropurpurea (1874) •
Echeveria australis (1903)
Echeveria bakeri (1991)
Echeveria ballii (1958)
Echeveria bella (1941)
Echeveria bicolor (1935)
Echeveria bifida (1839)
Echeveria calderonae (1997)
Echeveria calycosa (1967)
Echeveria canaliculata (1857) •
Echeveria cante (1997) •
Echeveria carminea (1941)
Echeveria carnicolor (1874) •
Echeveria catorce (2006)
Echeveria chapalensis (1989)
Echeveria chazaroi (1995)
Echeveria chidenis (1930)
Echeveria chihuahuensis (1935) •
Echeveria chilensis (1935)
Echeveria coccinea (1828) •
Echeveria colorata (1972) •
Echeveria compressicaulis (2002)
Echeveria craigiana (1952)
Echeveria crenulata (1911)
Echeveria cuernavacensis (1935)
Echeveria cuspidata (1903) •
Echeveria dactylifera (1972) •
Echeveria decumbens (1995)
Echeveria derenbergii (1921) •
Echeveria diffractans (1981) •
Echeveria elegans (1905) •
Echeveria euryclamus (1930)
Echeveria excelsa (1930)
Echeveria fimbriata (1911) •
Echeveria fulgens (1845) •
Echeveria gibbiflora (1828) •
Echeveria gigantea (1910) •
Echeveria globuliflora (1959)
Echeveria globulosa (1966)
Echeveria goldmanii (1905)
Echeveria gracilis (1935)
Echeveria grisea (1938)
Echeveria guatemalensis (1909)
Echeveria halbmayeri (1958)
Echeveria harmsii (1931) •

Echeveria helmutiana (1995)
Echeveria heterosepala (1903)
Echeveria humilis (1903)
Echeveria johnsonii (1958)
Echeveria juarezensis (1959)
Echeveria kimnachii (1998)
Echeveria laui (1976) •
Echeveria leucotricha (1914) •
Echeveria lilacina (1980) •
Echeveria longiflora (1959)
Echeveria longissima (1938) •
Echeveria lozanoi (1905)
Echeveria lutea (1911)
Echeveria macdougalii (1958)
Echeveria macrantha (1944)
Echeveria maxonii (1909)
Echeveria megacalyx (1959)
Echeveria minima (1968) •
Echeveria montana (1903)
Echeveria moranii (1972)
Echeveria mucronata (1839)
Echeveria multicaulis (1905)
Echeveria nayaritensis (1979)
Echeveria nebularium (2004)
Echeveria nodulosa (1873) •
Echeveria nuda (1856)
Echeveria olivacea (1991)
Echeveria oreophila (2002)
Echeveria pallida (1938)
Echeveria paniculata (1852)
Echeveria papillosa (1983)
Echeveria peacockii (1874) •
Echeveria penduliflora (1958)
Echeveria pendulosa (1992)
Echeveria peruviana (1834)
Echeveria pilosa (1917) •
Echeveria pinetorum (1905)
Echeveria pittieri (1911) •
Echeveria platyphylla (1903)
Echeveria pringlei (1903) •
Echeveria procerca (1967)
Echeveria prolifica (1978) •
Echeveria pruinata (1981)
Echeveria pulchra (1972) •
Echeveria pulvinata (1903)
Echeveria purpurascens (1930) •
Echeveria quitensis (1852)
Echeveria racemosa (1830) •
Echeveria recurvata (1974)
Echeveria rodolphi (2000)
Echeveria rosea (1842)
Echeveria rubromarginata (1905)

Echeveria runyonii (1935) •
Echeveria schaffneri (1903)
Echeveria scheeri (1845) •
Echeveria secunda (1858) •
Echeveria semivestita (1954)
Echeveria sessiliflora (1905)
Echeveria setosa (1910) •
Echeveria shaviana (1972) •
Echeveria simulans (1905)
Echeveria skinneri (1972)
Echeveria spectabilis (1941)
Echeveria steyermarkii (1944)
Echeveria stolonifera (1873)
Echeveria strictiflora (1852)
Echeveria subalpina (1910)
Echeveria subcorymbosa (1994)
Echeveria subrigida (1903) •
Echeveria tenuis (1903)
Echeveria teretifolia (1828)
Echeveria tobarensis (1930)
Echeveria tolimanensis (1958)
Echeveria toluensis (1905)
Echeveria trianthina (1909)
Echeveria turgida (1905)
Echeveria uhlii (1992)
Echeveria unguiculata (2003)
Echeveria utcuhambensis (2002)
Echeveria valvata (1963)
Echeveria viridissima (1959)
Echeveria walpoleana (1905)
Echeveria walthieri (1961)
Echeveria westii (1972)
Echeveria whitei (1925)
Echeveria wurdackii (2002)

Some popular older names have been reclassified as indicated below

E. albicans = *E. elegans*
E. ciliata = *E. setosa* var.
E. glauca = *E. secunda*
E. grandiflora = *E. gibbiflora*
E. lindseyana = *E. colorata*
E. linguifolia = *Cremnophila linguifolia*
E. obtusifolia = *E. fulgens* var.
E. parrasensis = *E. cuspidata*
E. potosina = *E. elegans*
E. sanchez-Mejoradae = *E. halbmayeri* v.
E. subsessilis = *E. peacockii*

Recommended Reading

The list of books containing information on echeverias is short. Several are well out of print but may be available in larger libraries or via the specialist libraries kept by cactus and succulent societies. For those keen to do additional research, the back issues of the Cactus and Succulent Society Journals (USA, UK, Holland, Germany and others) all contain detailed articles on echeveria species and cultivars. Your local cactus and succulent society may have access to some of these journals or may be able to put you in contact with collectors who do.

Bell, S., 2001 *Growing Cacti and other Succulents in the Garden*, Guild of Master Craftsman Publications Ltd. UK. Illustrates twenty echeverias.

Bell, N. & S., 2003 *Introduction to Echeverias*, Glenhurst Cactus Nursery, UK. Introductory; sixteen pages, available from the nursery.

Bell, N. & S., 2003 *A Colour Guide to Echeveria Spotting*, Glenhurst Cactus Nursery, UK. Mostly identification of species, hybrids and intergenerics. Sixteen pages.

Carruthers, I. & Ginns, R., 1973 *Echeverias A guide to Cultivation and Identification*, John Bartholomew & Sons Ltd. UK. Forty-five colour photos, most plants pictured are grown under bright light.

Cave, Y., 2002 *Succulents for the Contemporary Garden*, Random House NZ. Forty-five colour photos, many cultivars. Photos show plants grown under bright light.

Eggli, U. (Ed.), 2003 *Crassulaceae Illustrated Handbook of Succulent Plants*, (Vol. 6) Springer Germany. The twenty-six page section on *Echeveria* was written by Myron Kimmach. Thirty-two small colour photos, many of flowering stems. Most photos show plants grown under bright light. Detailed work covering the species almost exclusively.

Ginns, R., 1968. *Echeverias*, Published by The National Cactus and Succulent Society, UK. (Out of print) Covers mostly species. Poor quality monochrome pictures.

Pilbeam, J., 2006(?). *A New Echeveria Handbook* (tentative title). This book will cover and hopefully illustrate all *Echeveria* species. The long awaited update to Walther's now very out of date monograph.

Sajeva, M., Costanzo, M., 1994 *Succulents, The Illustrated Dictionary*, Timber Press, USA. Twenty small colour photos, mostly species. Photos show plants grown under low light.

Sajeva, M., Costanzo, M., 2000 *Succulents II The new Illustrated Dictionary*, Timber Press, USA. Forty echeverias illustrated, mostly species. Plants grown in low light.

Succulent Society, Japan, 1981 *Colour Encyclopaedia of Succulents*, Seibundo Shinkosha Publishing, Japan (Out of print) Forty-six small colour photos, mostly species. Photos show plants grown under low light.

Walther, E., 1972 *Echeveria*, California Academy of Sciences (Out of print). Detailed monograph covering the species almost exclusively. Two hundred and twenty-six black and white pictures and drawings. Sixteen colour plates.

Other books by the authors

For further reading on succulents with a heavy emphasis on echeverias, we recommend the '*Succulents for the Garden*' series (see inside back flap). These five books cover hundreds of succulents with particular emphasis on those suitable for imaginative landscaping and garden uses. Detailed aspects of health, care and propagation are also covered. If these books are not available in your bookstore, contact the authors.

Index

See pp 194-205 for cultivar names

acidity 18
 aeonium 11
 Ainsworth, Jocelyn 123
 air movement 18
 animal pests 26
 ants 27
 aphids 26, 27
 bacteria 28
 balconies 23
 bumpy hybrids 49
 Butterfield, Harry Dr. 83, 92, 95, 105, 133,
 157, 172, 192
 callusing 30, 32
 care 14, 18
 carunculations 49
 catalogues 41-43, 192
 chemical control 28
 Collis, Reg 147
 courtyards 14
 covers 23
 crested plants 7, 30, 38, 50, 51
 chromosomes 193
 cross-pollination 9, 192
 cross-breeding 38
 Cumming, David 61, 125
 cuttings 22, 30, 31, 38, 39
 dampness 23, 24
 deheading 20, 31
 Deleuil, M 119
 deserts 23
 diploid 193
 diseases 19, 26
 dolomite 18
 dormancy 16, 23
 drainage 18, 23
 dudleys 11
 echeveria cultivars (list of) 194-205
 echeveria species 6, 7, 37, 38, 44, 46, 47,
 192, 206
 evolution 8
 fasciation 50
 fertiliser 16, 18, 19, 23, 24, 44
 flower buds 20, 33
 flower stalks 20, 25, 33, 34
 flowering 20, 25, 34
 flowers 6, 19, 22, 36, 46
 freezing temperatures 23
 frilly hybrids 47, 48
 frosts 14, 16, 23, 24
 fungicides 28
 fungus infection 24, 28
 garden 16, 23, 24, 25
 germinate 36
 Graessner, R. 145
 Glass, Charles 175
 glasshouses 14, 26

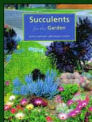
graptopetalums 38
 graptoverias 13
 greenhouses 16, 26
 ground covers 23
 growing conditions 43, 48
 growing season 16, 24
 grubs 26
 hail damage 24
 haworthias 10
 head cuttings 31, 32
 health 14, 15, 20
 hothouses 34
 humid climates 18, 20, 23, 24, 26, 28
 hybrid parents 37, 46, 193
 hybrid vigour 35
 hybridisers 40, 192, 193
 hybridising 36, 49, 192, 193
 hybrids 7, 9, 34-36, 40-43, 49, 50, 192-205
 hydroponic 16, 22
 inbreeding 36, 192
 indoor growing 21-23, 26
 intergeneric hybrids 12, 13, 193
 internet 43
 ISI echeverias 40, 41
 Kapitany, Michele 78, 130
 Kimnach, Myron 140, 149, 174
 kitchen benches 21
 labeling 39
 ladybird beetles 26
 leaf cuttings 32
 leaf damage 21
 leaf litter 26
 leggy growth 22, 25, 33
 light 14, 17, 22
 Lillie, Lila 56, 66, 93, 151, 192
 lime 18
 mail order 41, 43, 192
 Manley, Denise 97, 193
 McCabe, H. 57
 mealybug 20, 26, 27
 Mediterranean climates 14
 methylated spirits 29
 mycoplasma 29
 monstrose plants 7, 38, 51
 Mueller, Joyce 58
 mutations 7, 36, 42
 natural habitat 6, 8
 nutrients 16, 18, 24
 O'Connell, Renee 98, 127, 163, 164, 193
 offsets 30, 38, 47
 organic control 26
 organic matter 23
 Orpet, Edward 141, 179, 192
 out-crossing 192
 outdoor growing 22-25
 overcrowding 15, 25, 26
 overheating 17, 21
 pachyphytums 10, 38
 pachyverias 12
 pests 26
 plant lights 22
 pollen 35, 36, 192

pollen parent 38
 pollination 34, 36
 polyploids 193
 pot culture 14, 15, 22, 26
 pots, plastic 16
 pots, terracotta 16
 potting mix 16, 18, 34, 35
 propagation 30-33, 38, 39, 192
 pruning 25
 rainfall 24
 Reinelt, Frank 53, 65, 67, 68, 69, 104, 192
 Reiter, Victor 87, 165, 169
 repotting 16, 39
 reversions 30, 51
 root systems 6, 16, 18, 23, 25
 sedums 10, 38
 seed parent 38
 seedlings 34-36, 38, 40, 42, 43, 192
 seeds 34, 35, 36
 sempervivums 11
 shade 14, 21, 24, 33, 43, 44, 47
 shadecloth 17
 sister seedlings 43, 192
 Skinner, Don 57, 192
 slaters 26
 slugs 27
 snails 26, 27
 soils 23
 Spiller, Bev 77, 84, 155, 183
 spontaneous mutations 7, 38, 51
 sports 7, 51
 staking 20
 streptomycin 29
 subtropical 23, 25
 sunburn 16, 21, 23, 30, 32
 Taylor, W. 91
 temperature 16, 17
 tetraploids 193
 tools 29
 tropical climates 25
 Uhl, Charles Dr. 108, 162, 170, 193
 valid names 39
 van Keppel 92, 192
 variegates 7, 38, 51
 vegetative propagation 34
 ventilation 21
 verandahs 14, 34
 vine weevils 27
 viruses 28, 29
 Von Roeder, W. 192
 watering 16, 23, 24
 wind 20
 Worth, Don 52, 139, 192
 Wright, Dick 29, 59, 60, 63, 66, 72, 75, 79, 80,
 84, 85, 88, 90, 100, 102, 103, 106, 114, 116,
 129, 132, 134, 135, 143, 144, 146, 151, 153,
 154, 156, 159, 167, 170, 171, 173, 180, 183,
 192
 Wright, Ruth 88
 xGraptoveria 38
 xPachyveria 38
 xSedeveria 12, 38





Other books by the authors



Succulents for the Garden explains how succulents are used in garden situations. It describes the most commonly used varieties as well as many of the newer types now available. A great starting point for beginners.

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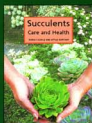


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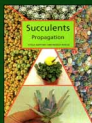


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